2021-03

HOW THE U.S. NAVY CAN BECOME A BETTER LEARNING ORGANIZATION

Kenning, Robert J.

Monterey, CA; Naval Postgraduate School

NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

HOW THE U.S. NAVY CAN BECOME A BETTER LEARNING ORGANIZATION

by

Robert J. Kenning

March 2021

Thesis Advisor: Mie-Sophia E. Augier
Co-Advisor: Nicholas Dew

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE			*Form Approved OMB No. 0704-0188*

1. AGENCY USE ONLY *(Leave blank)*	**2. REPORT DATE** March 2021	**3. REPORT TYPE AND DATES COVERED** Master's thesis

4. TITLE AND SUBTITLE HOW THE U.S. NAVY CAN BECOME A BETTER LEARNING ORGANIZATION	**5. FUNDING NUMBERS**
6. AUTHOR(S) Robert J. Kenning	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Naval Postgraduate School Monterey, CA 93943-5000	**8. PERFORMING ORGANIZATION REPORT NUMBER**
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A	**10. SPONSORING / MONITORING AGENCY REPORT NUMBER**

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release. Distribution is unlimited.	**12b. DISTRIBUTION CODE** A

13. ABSTRACT (maximum 200 words)

How can the Navy become a better learning organization? This thesis addresses this question by taking a precise look at what a learning organization is, what its essential parts are, and why they are important. This research is qualitative in nature and includes analyses of published literature, public records, congressional testimonies, committee hearings, and documented reform attempts. The work attempts to answer why the Navy has struggled to become a learning organization in the past, where it has found some small successes, and what the reasons are for failure.

In summary, smarter organizations are more adaptable to challenging scenarios and change, and both individual sailors and teams are more likely to innovate and find solutions in changing environments when a strong learning infrastructure is in place. A learning organization provides a supportive structure that enables and encourages learning and brings with it a culture of collaboration and innovation by removing some of the barriers that prevent individual learning processes from succeeding by themselves. The Navy's ability to learn as an organization is important because a Navy that has the capability to learn quickly and efficiently has a long-run advantage over its rivals.

14. SUBJECT TERMS learning organization, organizational learning, learning, innovation, collaboration	**15. NUMBER OF PAGES** 149
	16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	**18. SECURITY CLASSIFICATION OF THIS PAGE**	**19. SECURITY CLASSIFICATION OF ABSTRACT**	**20. LIMITATION OF ABSTRACT**
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

HOW THE U.S. NAVY CAN BECOME A BETTER LEARNING ORGANIZATION

Robert J. Kenning
Lieutenant Commander, United States Navy
BS, University of Minnesota, 2007

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
March 2021

Approved by: Mie-Sophia E. Augier
Advisor

Nicholas Dew
Co-Advisor

Marigee Bacolod
Academic Associate, Graduate School of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

How can the Navy become a better learning organization? This thesis addresses this question by taking a precise look at what a learning organization is, what its essential parts are, and why they are important. This research is qualitative in nature and includes analyses of published literature, public records, congressional testimonies, committee hearings, and documented reform attempts. The work attempts to answer why the Navy has struggled to become a learning organization in the past, where it has found some small successes, and what the reasons are for failure.

In summary, smarter organizations are more adaptable to challenging scenarios and change, and both individual sailors and teams are more likely to innovate and find solutions in changing environments when a strong learning infrastructure is in place. A learning organization provides a supportive structure that enables and encourages learning and brings with it a culture of collaboration and innovation by removing some of the barriers that prevent individual learning processes from succeeding by themselves. The Navy's ability to learn as an organization is important because a Navy that has the capability to learn quickly and efficiently has a long-run advantage over its rivals.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

LIST OF FIGURES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

AMS	Advanced Military Studies
AQI	Al-Qaeda in Iraq
AWS	Amphibious Warfare School
BIX	Big Ideas Exchange
BSO	Budget Submitting Office
CAS	Complex Adaptive System
CDS	Career Development Symposium
CIA	Central Intelligence Agency
CIC	Combat Information Center
CNO	Chief of Naval Operations
CO	Commanding Officer
COG	Center of Gravity
CPAC	Civilian Personnel Advisory Center
DEW	Defense Early Warning
DIA	Defense Intelligence Agency
DOD	Department of Defense
E4S	Education for Seapower
ED WG	Educators Development Working Group
EM	Emergency Management
EOC	Emergency Operations Center
EWS	Expeditionary Warfare School
FBI	Federal Bureau of Investigation
FMFM	Fleet Marine Force Manual
FYDP	Future Year Defense Program
IHC	Intellectual Human Capital
JIATF	Joint Interagency Task Force
JML	Journal of Military Learning
JPME	Joint Professional Military Education
MCDP	Marine Corps Defense Publication
MCU	Marine Corps University

MYR	Mid-Year Review
NCC	Naval Community College
NDS	National Defense Strategy
NGA	National Geospatial-Intelligence Agency
NPR	Naval Personnel Repository
NPS	Naval Postgraduate School
NROTC	Naval Reserve Officers Training Corps
NRP	Naval Research Program
NSA	National Security Agency
NUS	Naval University System
NWC	Naval War College
NWCF	Navy Working Capital Fund
NWS	North Warning System
NWSI	Naval Warfare Studies Institute
OCHR	Navy Office of Civilian Human Resources
PBIS	Program Budget Information System
PCO	Prospective Commanding Officer
PME	Professional Military Education
POM	Program Objective Memorandum
PPBE	Planning, Programming, and Budgeting Execution
RDT&E	Research, Development, Training and Evaluation
RRL	Ready Relevant Learning
RS	Resource Sponsor
SCP	Specialty Career Path
SIM	Shore Installation Management
SIS	Steal Ideas Shamelessly
SJA	Staff Judge Advocate
SOF	Special Operations Forces
TDG	Tactical Decision Game
TF	Task Force
TWI	Tours with Industry
UBL	Unit-Based Leader

UBT	Unit-Based Team
WIC	Warfare Innovation Continuum

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

First, I would like to thank my awe-inspiring bride, Erin, not just for supporting me during the writing of this thesis but also for consistently supporting me throughout my naval career. You have made our time in California so special, and the incredible memories we have made as a family will last forever. I can never thank you enough for all of the memories we have made at multiple duty stations since we began this long journey together. You are the reason why I succeed, and I would never have made it this far without you. I owe you the world and then some. You are the true love of my life, and I look forward to sharing many more great books and great journeys in our future together!

Second, I would like to thank my advisors, Dr. Mie Augier and Dr. Nick Dew of the Graduate School of Defense Management at the Naval Postgraduate School. Thank you for allowing me to tackle this topic and for showing me the "rocks across the river" so I could find my way across. I will always be grateful for your insight and mentoring. I only wish we had more time together. Thank you so much for your patience and guidance. I will miss our conversations.

Finally, I would like to thank my children, Charles and Margaret. Our afternoon walks in the California sun between classes made all of this a lot easier, and I will miss these days that we have spent together. Our trips to the playground and seeing your smiles were always the best part of my day. Thank you both for your sacrifices and continuing to support me and my career. You have always been in my corner, and I will always be in yours. Never forget how much your father loves you!

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

> The rate at which organizations learn may soon become the only sustainable source of competitive advantage.
>
> —Peter Senge[1]

A. OVERVIEW

The twenty-first century has proven that the United States Navy can no longer assume that its status as the world's lone superpower will not be contested.[2] Our Navy must adapt to rapidly advancing technologies and fast-rising competitors. There is strong consensus among today's leaders that the military advantage gap between the United States and the rest of the world is narrowing, with rivals gaining in key areas and passing the United States in others.[3] Long-term strategic competitors and adversaries with well-defined long-range objectives are undermining the institutional and economic order that was established after World War II, and our presumptive superiority in the air, maritime and information domains has been challenged for the first time since the end of the Cold War.[4] The three priorities of the *2018 National Defense Strategy* (NDS) are to "build a more lethal force, strengthen alliances and find new partners, and to reform the Department of Defense (DOD) for greater performance and affordability."[5] This means that the twenty-first century U.S. Navy will demand more from its Sailors, not less.

For the sake of our national security, we must "disrupt our legacy stove-piped educational approach, lift it out of the twentieth century, and become a more agile learning

---

[1] "Peter Senge Quote," A-Z Quotes, accessed November 12, 2020, https://www.azquotes.com/quote/783088.

[2] David H. Berger, Michael M. Gilday, and Karl L. Schultz, *Naval Doctrine Publication 1* (Arlington: United States Naval Service, 2020), 29.

[3] Michael G. Mullen et al., "Department of the Navy Education for Seapower (E4S) Study," April 19, 2020, 85, https://media.defense.gov/2020/May/18/2002302021/-1/-1/1/E4SFINALREPORT.PDF.

[4] Berger, Gilday, and Schultz, *Naval Doctrine Publication 1*, 29.

[5] Department of Defense, Summary of the 2018 National Defense Strategy of the United States of America (Washington, DC: Department of Defense, 2018), 5, https://dod.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf.

organization."[6] The organization that is able to learn the fastest and get the most from its people will have the long-term advantage. While superior weapons and technology have their own merits, human factors often make the difference between winning and losing.[7] The Navy's capacity to leverage the talent and capabilities of its Sailors, along with its ability to network and quickly provide solutions will be critically important if it wishes to maintain the capabilities gap it currently enjoys over its rivals.

Similar to the Cold War's arms race, this is a *learning race*, and we are losing. Despite our historical advantage, we have recognized the need to learn, and for the first time in twenty years we have a very clear global picture as to why our Navy's learning is important. We must make learning a priority. Our Navy must find ways to learn more than our rivals in ways that are relevant and applicable, no matter the implications. We must do this, what other choice do we have?

B. PURPOSE

My focus for this thesis is on individual learning and why it is important for an organization. I acknowledge that other forms of organizational and network learning exist that involve the synthesis and synchronization of massive amounts of data, but my primary focus is on the individual, and how individuals make teams and organizations stronger through the development of human and intellectual capital.

This purpose of this thesis is to answer the primary research question, "how can the Navy become a *better* learning organization?" While I have never agreed with the notion that today's military should be run more like a business, I would propose that there are several areas where today's military should operate more like a learning organization. Prior to writing this thesis, I noticed that the term "learning organization" was used often, but the different circumstances in which it was used also demonstrated that many individuals took the term to mean different things depending on the context. This thesis aims to properly define what a learning organization is, and to capture some of the aspects of what

[6] Mullen et al., "Education for Seapower," 82.

[7] Berger, Gilday, and Schultz, *Naval Doctrine Publication 1*, 56.

it would take for the Navy to become a better one. This thesis will also identify and attempt to understand previous endeavors and reasons for resistance and failure, and recognize examples that have made successful transitions in smaller military units and outside government agencies. I believe the need to understand the successful elements of a learning organization are vitally important, as this transformation is considered one of the essential foundations as established in the most recent Education for Seapower (E4S) Study.[8]

This thesis is intended to continue the discussion upon previous works that have researched organizational improvement and commitment to lifelong learning, but with the concept of transformation to a learning organization as its primary focus. Previous works have done an excellent job highlighting the importance of aspects such as systems thinking, organizational change, and technology, but there has been little practical translation that broadly explains what a learning organization is, and how it can be applied to more modern military organizations. A large amount of research has also stressed the transformation and improvement of systems, whereas my research is focused on the ability to cultivate learning and the development of people, as they are the most essential part of any learning organization. My goal is to help bridge this gap and continue translating some of the more modern research for practical readers while identifying areas in which these applications can be successful in the Navy of today as well as in the future.

C. METHODOLOGY

This thesis will be qualitative in nature, utilizing published literature, scholarly writings, congressional testimonies, academic journals, previous theses, and additional public records. My literature review will take a precise look at what a learning organization is, what the essential parts are and why each of them is important. The review will also pinpoint the common conditions necessary to transition to a learning organization, and how to identify significant signs of progress during the transformation.

[8] Mullen et al., "Education for Seapower," 82.

D. ANALYSIS

The analysis section will highlight similarities between the literature and what could potentially be applied to the Navy. It will also analyze historical examples of when the Navy enjoyed periods of innovation during both the interwar periods, and when engaged in conflict, highlighting areas of success and reasons for failure to determine what lessons should be learned for applicability moving forward. It will also examine organizational structures and historical learning cultures, to see if these models can assist the Navy in becoming a better learning organization, as well as the role of Professional Military Education (PME) and the Navy's commitment to masters-level education at its affiliated command and staff colleges.

E. SUMMARY

This chapter introduced the importance of the learning organization and how it applies to meeting the requirements of the NDS. The purpose of the next chapter will be to review literature associated with common structures of learning organizations, and to provide context for analysis and applicability for public and defense organizations in later chapters.

II. ANALYSIS AND FINDINGS

A. THE LEARNING ORGANIZATION

1. What is a Learning Organization?

The term "learning organization" has been used for decades, yet more research needs to be conducted to further define what a learning organization looks like, how it is structured, how it develops its leaders, teams, and individuals, and finally, how it can be applied to public organizations which are further bound by restrictions and requirements not experienced by private organizations. Understanding these key concepts are crucial before the Navy can become a better learning organization.

Chris Argyris and Donald Schön were among the first to conduct research on learning organizations in *Organizational Learning: A Theory of Action Perspective* (1978).[9] Bob Garratt made a key contribution by bringing broader awareness to the term "learning organization" in his book *The Learning Organization* (1987).[10] The specific concept and structure of a learning organization was expanded in much greater detail by Peter Senge, who released his first edition of *The Fifth Discipline: The Art and Practice of The Learning Organization* three years later. Senge's work serves as the basis for what a modern learning organization is, with most of his terminology used widely to this day.[11]

Senge defines a learning organization as "a place where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together."[12] Very few organizations have the advantage of "learning from the top," as most will not have the advantage of a leader named Ford, Bell, or Jobs. These are examples of energetic leaders that at times seem to singlehandedly

[9] Chris Argyris and Donald A. Schön, *Organizational Learning: A Theory of Action Perspective* (Reading: Addison-Wesley, 1978).

[10] Bob Garratt, *The Learning Organization* (London: Harper Collins Publishers, 1987).

[11] Peter M. Senge, *The Fifth Discipline: The Art & Practice of The Learning Organization*, Revised and Updated Edition (New York: Currency Publishing, 2010).

[12] Senge, *The Fifth Discipline*, loc 165 of 7323, Kindle.

drive innovation, but they are also rare, which is why Senge stressed "that that the organizations that will truly excel in the future will be the organizations that discover how to tap peoples' commitment and capacity to learn at all levels in an organization."[13] His belief is that all individuals, deep down, are learners. From birth, we all learn to walk and speak without any formal instruction. Children are masters of trial and error, asking hundreds of questions, constantly inquisitive, until told to stop. Not being afraid to ask question is a skill that every person once possessed, and building a learning organization means bringing this skill back, by breaking down some of the barriers that prevent people's natural curiosity to explore, learn, and grow.

Senge also sees the learning organization as an opportunity for team members to feel connected and more fulfilled. It is a genuine space of liberation where individuals stop seeing only the complexities of systems, and instead see specific opportunities for them to contribute to the organization. It alleviates a traditional workplace sense of helplessness, and instead develops individual and team empowerment. The learning organization does not merely improve individuals' ability to learn, it teaches them to restructure how they think.

2. The First Four Disciplines

To maximize a person's ability to learn while simultaneously applying it to an entire organization, Senge describes the five disciplines he has found that make the most effective learning organizations. The first four core disciplines are Personal Mastery, Mental Models, Building Shared Vision, and Team Learning.[14] The fifth discipline is Systems Thinking, which is the mechanism that ties the first four disciplines together. When these five disciplines are linked and operating in unison, the basic structure of a learning organization is in place.

[13] Senge, loc 175.

[14] Senge, loc 217–287.

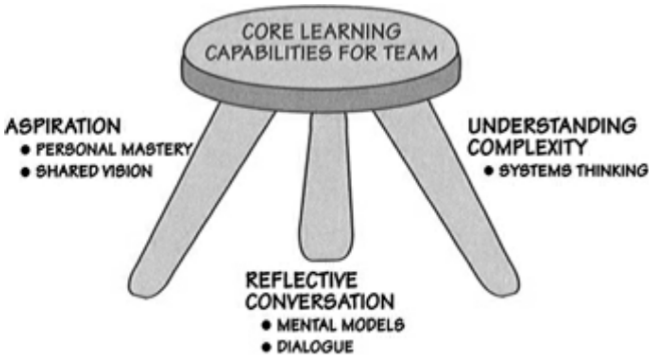


Figure 1. Senge's Core Learning Capabilities of Teams.[15]

Personal mastery is "the discipline of continually clarifying and deepening our personal vision, of focusing our energies, of developing patience, and of seeing reality objectively, making it one of the essential cornerstones and the learning organizations spiritual foundation."[16] Senge contends that an organization is no stronger than the sum of its parts, which is why an organization must invest in the education and growth of its individuals, which in turn expands the overall organization's capacity to learn and thrive. He also points out that many individuals enter the workforce full of energy and have a strong desire to make a difference, but that this desire tends to subside as they age or if the organization does not invest in them. They lose the excitement that they first brought to the organization and are content to simply perform their standard work functions each day, and go home, while the greater purpose and "sense of mission" has been lost.

It is also important to understand that personal mastery forces both the individual and the organization to focus on what is critically important, which helps to ensure specific jobs are mission focused and position descriptions match the work being performed. It is also essential to view personal mastery as not having an end state. It is a process of continual learning, a special sense of purpose where the journey is the reward, where a person never "arrives."[17] An ongoing issue that many organizations face is that people and

[15] Source: Senge, *The Fifth Discipline*, loc 73.

[16] Senge, loc 239.

[17] Senge, loc 2162.

especially leaders lack personal awareness of their inner state, not understanding how they are connected to the entire system. Nataša Rupčić made the observation, "it is clear that harmonious yet unpredictable development of social systems requires meaningful participation of its members that are committed to their own contribution, but are at the same time aware of their influence on the whole."[18]

One final point is that personal mastery should not just be ascribed to a specific job or trade. It can also be taken to mean a mastery of vision, in which the individual embraces creative tension and is not afraid of failure because both the individual and the organization see the value of long-term success over the need to focus on short-term results.

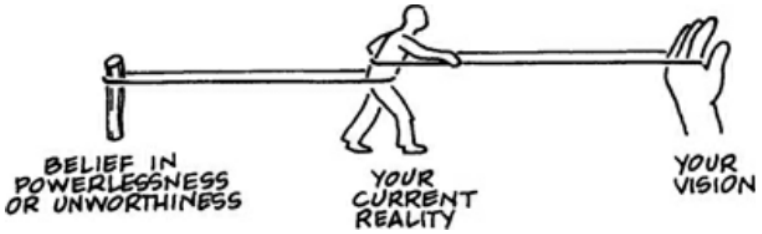


Figure 2. Forces of Structural Conflict.[19]

Creating this space and seeing challenges as an opportunity to grow and learn is why personal mastery is considered the soul of the learning organization. Decades after the release of *The Fifth Discipline*, Senge said in an interview that most people he speaks with often "point to personal mastery as a kind of cornerstone is awakening to the central role of deep personal change in any real systems change."[20]

[18] Nataša Rupčić, "Learning Organization – Organization Emerging From Presence," *The Learning Organization* 27, no. 1 (January 2019): 23, https://doi.org/10.1108/TLO-09-2019-0130.

[19] Senge, loc 2399.

[20] Simon Reese, "Taking the Learning Organization Mainstream and Beyond the Organizational Level: An Interview with Peter Senge," *The Learning Organization* 27, no. 1 (January 2020): 13, https://doi.org/10.1108/TLO-09-2019-0136.

Mental models are "deeply ingrained assumptions, generalizations, or even pictures or images that influence how we understand the world and how we take action."[21] They can be either well understood business norms or they can be somewhat subconscious, but either type can heavily sway the perceptions of the individuals in an organization. Mental models can hinder an organization if they include assumptions that prevent an organization from reaching its full potential. Some familiar adages such as "that isn't what this company does" or "we cannot get into that market" are some common examples that often hold an organization back when it may have a chance to progress forward.

If an organization values the importance of challenging assumptions, including those that are the most deeply entrenched, it puts itself in better position to reflect on past practices and ensure they still deliver the best solutions moving forward. Instead of mental models existing only as negative influencers to obstruct improvement, they are also excellent opportunities to learn and grow. Positive mental models sound similar to statements such as "at our company, we care about our customers" or "product quality is what's most important to us." Both positive and negative mental models must be challenged, and individuals must be open to internal exploration, asking themselves, "How open am I to exploring that my own way of thinking could be part of the problem?"[22]

Building shared vision "involves the skills of unearthing shared pictures of the future that foster genuine commitment and enrollment rather than just compliance."[23] Senge points out that some of the organizations that have found the most success are because they found ways to bring people together around a common purpose, what he calls a "sense of destiny," similar to how Bell envisioned use of the telephone, or Apple the home computer. When a shared vision is genuine and has the backing of subordinates, the entire organization works harder toward a common goal, not because they are told to, but because they want to.[24]

---

[21] Senge, loc 252.

[22] Reese, "Taking the Learning Organization Mainstream and beyond the Organizational Level," 13.

[23] Senge, loc 271.

[24] Ibid.

It is also important to understand the difference between a "genuine" shared vision, and a "generic" vision statement. Thomas Edison once said that a "vision without execution is just hallucination."[25] Some organizations may have inspirational vision statements that come from the top but lack the resources or ability to generate employee buy-in to achieve their strategic vision. Senge explains that a shared vision is not simply a common thought in people's minds, it can be a driving force in people's hearts. Henry Ford envisioned automobile transportation for everyone, not just the wealthy. Steve Jobs and Steve Wozniak envisioned the home computer as a way of "empowering" people.[26] This is why building a shared vision that garners support on all levels of an organization is so important.

> In every instance where one finds a long-term view actually operating in human affairs, there is a long-term vision at work. The cathedral builders of the Middle Ages labored a lifetime with the fruits of their labors still a hundred years in the future. The Japanese believe building a great organization is like growing a tree; it takes twenty-five to fifty years. Parents of young children try to lay a foundation of values and attitude that will serve an adult twenty years hence. In all of these cases, people hold a vision that can be realized only over the long term.[27]

Building shared vision also means understanding the significance of the earlier discipline, personal mastery. A large part of personal mastery lies within the individual's ability to embrace creative tension outside of their comfort zone to improve themselves. These are the same individuals that when brought together, collaborate effectively by pushing their peers well outside their own comfort zones, so that they can collectively develop a shared vision that withstands scrutiny and remains relevant over time. Despite the excitement and inspiration that can accompany building a shared vision, the process of building itself is not always a pleasurable experience. Managers can have strong opinions of what is required, often dismissing the opinions of their subordinates because it is easier to speak than to listen, especially on matters that they understand, or *think* they understand.

---

[25] Bryan Stolle, "Vision Without Execution Is Just Hallucination," *Forbes*, July 22, 2014, https://www.forbes.com/sites/bryanstolle/2014/07/22/vision-without-execution-is-just-hallucination/?sh=37ac724a7446.

[26] Senge, loc 3227.

[27] Senge, loc 7323.

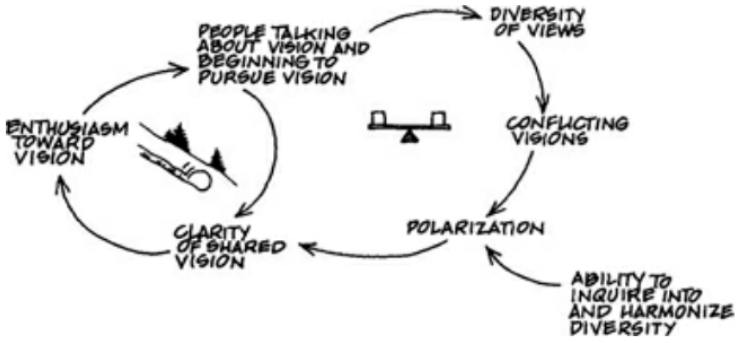


Figure 3. Limits to Growth.[28]

This form of collaboration can take serious work, is often contentious, and relies on a group's ability to survive outside of their comfort zones and their willingness to embrace the creative tension that the strongest shared visions emanate from. The strongest shared visions are the ones in which an organization is committed to "the long and often arduous process of dealing with the gap between that vision and what exists today."[29]

Team learning "is the process of aligning and developing the capacity of a team to create results."[30] Team learning begins with dialogue, which Senge emphasizes is very different from discussion. Some may take these terms to mean the same, but they do not. The key difference is that *dialogue* is taken to mean *thinking together*, whereas *discussion* is taken to mean *speaking together*.

> To the Greeks, *dialogos* meant a free-flowing of meaning through a group, allowing the group to discover insights not attainable individually. Today, the principles and practices of dialogue are being rediscovered and put into a contemporary context. (Dialogue differs from the more common *discussion*, which has its roots with *percussion* and *concussion*, literally a heaving of ideas back and forth in a winner-takes-all competition.) The discipline of dialogue also involves learning how to recognize the patterns of interaction in teams that undermine learning. The patterns of defensiveness are often deeply ingrained in how a team operates. If

[28] Senge, loc 3579.

[29] Reese, "Taking the Learning Organization Mainstream and beyond the Organizational Level," 13.

[30] Senge, loc 3666.

> unrecognized, they undermine learning. If recognized and surfaced creatively, they can accelerate learning.[31]

The most critical element of team learning is alignment, because without it, individuals may work extremely hard, but their individual results seldom translate into team results because the *team* does not understand how best to complement each other's capabilities. This leads to wasted energy and inefficiency.

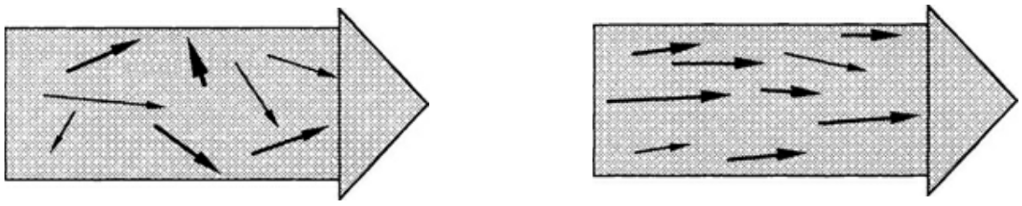


Figure 4. Unaligned versus Aligned Workforce. [32]

It is essential for a team to have the ability to think through complex issues, and ensure the team learns how to collaborate effectively so the group is more intelligent than any one individual. One of Senge's most famous questions, "how can a team of committed managers with individual IQs above 120 have a collective IQ of 63?"[33] A learning organization's goal is to align the combined intelligence of individuals so that it increases both the individual's and team's capacity to learn and improve through coordination. This coordination is amplified when individuals learn to suspend their preconceived assumptions and regard each other as colleagues, which further exemplifies the difference between dialogue and discussion, where the team cares more about solving a problem than a singular individual's need to be right.

To enhance an organization's ability for team learning, leaders need to create space, what most organizational learning experts call *practice fields*, where teams can come together and learn how to learn together. Practice fields can be question and answer

[31] Senge, loc 287.

[32] C Kiefer and P Stroh, "A New Paradigm for Developing Organizations," *Training & Development Journal*, Transforming Work, 37, no. 4 (1983): 26–34, https://psycnet.apa.org/record/1983-24536-001.

[33] Senge, loc 3651 and 3660.

sessions, learning laboratories, interactive case studies or simulations, but they all have the primary goal of developing joint skill that exceeds individual skills. Creating this space is essential for manager's that want their subordinates to feel secure in coming together. Teams that effectively learn are comfortable dealing with internal conflict and therefore avoid team phenomena like groupthink, and they avoid the defensive routines and entrenched habits of protecting themselves from embarrassment that come with exposing their thinking.[34] By allowing teams to try new ideas and potentially make mistakes, it allows them to collaborate and support the organizations longer-range goals of bringing bigger solutions that support the organization's shared vision.

Team learning has received increased attention in recent years as many businesses have come to understand that effective teams can generate significant value for an organization.[35] Team learning has also seen significant growth in the research community, becoming its' own research domain, as team design provides a way of structuring organizational activities to ensure that teams operate at peak effectiveness.[36] In 2019, Rebelo, Lourenco, and Dimas encountered thirty different definitions in their research, noting that "despite the lack of consensus that exists around which behaviors are included in the team learning process, all appeared to refer to an ongoing process of collective reflection and action."[37] They concluded that most authors prefer Edmondson's 1999 definition stating that team learning is "characterized by asking questions, seeking

[34] Irving Lester Janis, *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascoes* (Boston: Houghton Mifflin Company, 1972), 250.

[35] Teresa Rebelo, Paulo Renato Lourenço, and Isabel Dórdio Dimas, "The Journey of Team Learning Since 'The Fifth Discipline,'" *The Learning Organization* 27, no. 1 (January 2019): 44, https://doi.org/10.1108/TLO-10-2019-0144.

[36] John E. Mathieu et al., "A Review and Integration of Team Composition Models: Moving Toward a Dynamic and Temporal Framework," *Journal of Management* 40, no. 1 (January 2014): 147, https://doi.org/10.1177/0149206313503014.

[37] Rebelo, Lourenço, and Dimas, "The Journey of Team Learning Since 'The Fifth Discipline." See also George Boak, "Team Learning and Service Improvements in Health Care," Team Performance Management 20, no. 5/6 (August 2014): 244, https://doi.org/10.1108/TPM-04-2013-0010, and Chantal M. J. H. Savelsbergh, Beatrice I. J. M. van der Heijden, and Rob F. Poell, "The Development and Empirical Validation of a Multidimensional Measurement Instrument for Team Learning Behaviors," Small Group Research 40, no. 5 (October 1, 2009): 581, https://doi.org/10.1177/1046496409340055.

feedback, experimenting, reflecting on results and discussing errors or unexpected outcomes of actions."[38]

3. The Fifth Discipline

Systems thinking, the fifth and final discipline, is where everything comes together. Systems thinking is what connects the first four disciplines by addressing the complexity of an open and constantly evolving system. It is sometimes difficult to see the entire system if an individual or team is too close to any one part of the problem. It can also be frustrating for teams hard at work addressing specific issues in one area, while not fully realizing the implications of their work and the effect it may have on another.

Mental models are what an individual observes or believes in the present, short-term, which helps to build upon the shared vision and group commitment for the long-term. Team learning teaches groups to look at the bigger picture, whereas personal mastery teaches individuals to understand how their actions impact that bigger picture. They all converge in systems thinking.

The fifth discipline continues to evolve. In 2004, Senge along with Claus Otto Scharmer et al, "were also able to better connect the two separate system traditions of western science: the 'systems thinking' anchored in understanding engineering systems, which had been Senge's initial foundation, and the newer 'systems sensing' developed by Scharmer, which is more rooted in holism and theories of living systems like autopoiesis."[39]

> It is common to say that trees come from seeds. But how could a tiny seed create a huge tree? Seeds do not contain the resources needed to grow a tree. These must come from the medium or environment within which the tree

[38] Amy Edmondson, "Psychological Safety and Learning Behavior in Work Teams," *Administrative Science Quarterly* 44, no. 2 (June 1999): 353, https://doi.org/10.2307/2666999.

[39] Reese, "Taking the Learning Organization Mainstream and beyond the Organizational Level," 15. See also George Boak, "Team Learning and Service Improvements in Health Care," *Team Performance Management* 20, no. 5/6 (August 2014): 244, https://doi.org/10.1108/TPM-04-2013-0010.

> grows [. . .]. In a sense the seed is a gateway through which the future possibility of the living tree emerges.[40]

Rebelo et al.'s most recent 2019 review of relevant literature supports the conclusion that systems thinking is the "systemic perspective where mastering the tools for thinking systemically are central in learning teams and central in learning organizations, particularly relevant in teams that deal with complex and dynamic processes and realities (such as management, project or commercial teams)."[41]

When the core skill and fifth discipline of systems thinking is practiced correctly, and the preceding four disciplines have also been applied properly and operating in unison, the learning organization may come to experience what is called *metanoia*, which means "a shift of mind". Senge says that metanoia is at the heart of every learning organization, often described as an awakening, the point where adaptive learning merges with generative learning, which when combined enhances an organizations capacity to create. It is the "a-ha" moment when individuals realize that they are now part of something bigger than themselves and when they stop seeing the world in separate pieces and instead see it as more connected.[42] This is comparable to the experience a person feels when part of a great team. This powerful feeling is something that many people continue to search for, something they try hard to "get back" to. People miss those instances when they felt the most productive, the most fulfilled, the most alive. Some spend years, even decades trying to recapture this feeling, and many will never feel it again, but it does not stop them from trying. The goal for many in a learning organization is to recapture this metanoia and sustain it for as long as possible.

---

[40] Peter M. Senge, *Presence: Exploring Profound Change in People, Organizations and Society* (London: Nicholas Brealey Publishing, 2005), 2.

[41] Rebelo, Lourenço, and Dimas, "The Journey of Team Learning Since 'The Fifth Discipline,'" 44.

[42] Senge, *The Fifth Discipline*, loc 343.

B. THE LEARNING CULTURE

> No problem can be solved from the same consciousness that created it; we must learn to see the world anew."
>
> —Albert Einstein[43]

Nothing remains the same forever. Job requirements continue to change as the world transitions from the industrial era to the information era, and labor will have more to do with the human mind than it will human hands. One cannot assume that today's problems can be solved with yesterday's organizational structures and mindsets. Today's organizations must be far more adaptable and creative, willing to take risks and treat each failure as an opportunity to learn.[44] A learning organization recognizes the need to learn as absolute necessity, more important than immediate goals and profit. Whereas short-term goals tend to focus on specific processes, efficiencies and conformity, a long-term focus allows for the evolution of empowerment, innovation, and teamwork.

> Just as nations have distinct cultures, organizations have distinct ways of believing, thinking, and acting that are manifested by symbols, heroes, rituals, ideology, and values. The nature of learning and the manner in which it occurs are determined in large measure by organizational culture. The culture of most organizations is one of non-learning, if not actually anti-learning. Taking risks, trying new approaches, and sharing information may be discouraged, whereas "not making waves" may be rewarded. Before such a company can become a learning organization, it must transform these cultural values. Values complement the pulling force of an organization's vision by pushing the company to reach that vision.[45]

Learning complex new skills often requires making several mistakes to improve and get better, and teams need opportunities to practice where errors are understood to be part of the path to develop a higher quality end product. "Culture is the accumulation of past learning and thus reflects past successes, but some cultural assumptions and behavioral rules can become so stable that they are difficult to unlearn even when they become

---

[43] Michael Marquardt, *Building the Learning Organization: Achieving Strategic Advantage through a Commitment to Learning* (Boston: Nicholas Brealey, 2011), 18.

[44] Marquardt, *Building the Learning Organization*, 13.

[45] Marquardt, 64.

dysfunctional…and this type of unlearning can be emotionally difficult because the old way of doing things, after all, may have worked for a while and become embedded."[46]

Private organizations have far more flexibility than their public counterparts when building a learning culture. Michael Marquardt provides an example of what many of today's private organizations strive for when making the transition from their current structure to a learning organization. He also illustrates the organizational shift in mindset from training to education, the recommended steps to take when changing organizational paradigms, and how to identify the transition from steady-state to an organization that embraces and excels with continuous change. Please see Tables 7-11 in Appendix A.

Marquardt also breaks down what he sees as the essential pieces to a learning organization into five separate subsystems. If any one of the five subsystems is missing or deficient, it severely compromises the integrity of the entire system and diminishes the effectiveness of the remaining four subsystems. Please see Figures 9-14 in Appendix B.

A learning organization promotes a culture more centered on individual empowerment instead of control, where leaders more closely fit the roles of an instructor, coach, and mentor, instead of simply a supervisor. A learning organization requires a different type of leader, less transactional and more transformational, which is why the roles of instructor, coach, and mentor are so heavily valued. Please see Table 12 in Appendix A.

Russell Sarder described what he believes is the ideal learning culture along with the requisite learning methods and skills that will be necessary for organizations to adapt and evolve as the world continues to shift from the industrial age to the information age to meet twenty-first century challenges:[47] Please see Figures 15-16 in Appendix C.

> In learning organizations, we are now witnessing a paradigm shift in emphasis from training to learning. Training signifies a one-way transfer of established wisdom or skill from the expert instructor, whereas learning

[46] Edgar H. Schein, "How Can Organizations Learn Faster? The Challenge of Entering the Green Room," *Sloan Management Review* 34, no. 2 (Winter 1993): 87, http://www.proquest.com/docview/224958701/abstract/D21FBE85A5824B5CPQ/1.

[47] Russell Sarder, *Building an Innovative Learning Organization: A Framework to Build a Smarter Workforce, Adapt to Change, and Drive Growth* (New York: Wiley Publishing, 2016), 31.

> varies from this process in several important ways. Learning involves not only absorbing existing information but also creating new solutions to problems that are not yet fully understood. Learning may take place with or without a teacher because it is a personal, group, and organizational ability. With training, the organization supplies information to employees; with learning, the organization encourages employees to wonder, question, and find their own answers.[48]

1. Setting the Stage for Team Building

Building an effective team first means the elimination of barriers and unnecessary restrictions, which helps to cultivate an environment for teamwork and learning.

> Tall, rigid hierarchies with impregnable department silos are a bane to learning because they block the fast and unimpeded flow of knowledge that is essential to being competitive. Power and authority cannot extend to the point of greatest impact, further diminishing the organization's interest in and ability to learn. A flat, streamlined structure that incorporates team collaboration, and few modes of control maximizes the flow of knowledge and learning.[49]

Flatter organizational structures are more effective at producing results because they are seamless and enable more honest and direct communication without unnecessary filtering. They allow individual units to operate with greater autonomy and grant them the discretion to solve problems quickly without first seeking approval. An ideal learning organization understands the importance of removing as many divisional barriers as possible because these barriers keep individuals isolated from each other and tend to bolster feelings of bias, suspicion, and careerism.

Instead of arranging an organization by departments, many learning organizations prefer to form project-based teams. These teams enjoy integration across specialties, and their smaller size enables them to work faster and with greater efficiency. They are also more suited to network and share information up, down, and across the organization. They are given the discretion to make decisions for themselves, and they show great initiative without having to be told what to do. A learning organization has little difficulty understanding that mission accomplishment is more important than specific processes.

---

[48] Marquardt, *Building the Learning Organization*, 47–48.

[49] Marquardt, 77.

The most difficult barriers to remove in government organizations are the bureaucracies and hierarchies themselves. Bureaucratic inertia is one of the hardest things to break, because we can often only remove the barrier if we dismantle the organization.[50] Since this is not an option, in leu of large-scale transformation, small course corrections and slight improvements to current processes and programs are the next best options.

Despite the presence of these existing barriers to learning and innovation, it is important to create space and allow time for teams to learn as much as possible, even if existing organizational structures make it difficult to do so. While the Navy has made some progress regarding the reduction of administrative distractions, much of its hierarchical structure remains due to the requirements of being subject to an annually funded appropriation.[51] Other organizations find creative ways to centralize paper while decentralizing people, because they understand that "fewer bureaucracies allow the lifeblood of knowledge to flow quickly and freely throughout their organizations."[52] To be a learning organization, a group must take serious steps to remove structural barriers and simplify policies, and work units must ensure they have support from every level of management, all the way to the top.

2. Building Effective Teams

The first part of building effective teams means choosing the right leaders. This should not be confused with choosing a leader first, as it is more important to ensure the leader that has been chosen is the best fit for the selected team. It can be challenging to find the right leaders in today's military hierarchy. Rosen argues that there is little incentive to innovate amongst military officers, because the promotion structure of the military tends to reward officers that follow more traditional career paths. He also concludes that officers considered "mavericks" who challenge the status quo and advocate for improvement, often

[50] Teaching note prepared by Mie Augier, Nick Dew and Kathryn Aten, April 2015, for instructional purposes only at NPS, Monterey, CA.

[51] United States Government U.S. United States Navy, "Reducing Administrative Distractions" (official message, Washington, DC: Department of the Navy, 2016), https://www.public.navy.mil/bupers-npc/reference/messages/Documents2/NAV2014/NAV14117.txt.

[52] Marquardt, *Building the Learning Organization*, 80.

suffer professionally for their efforts, with many failing to promote to the senior officer ranks. For the few that do survive and promote, it can take 20 years or longer until they are in senior positions of influence. This means it took an entire generation for their innovation to reach the top, after which they have precious few years remaining before retirement. [53]

The Navy also has a proud history, with its own mental models of service and leadership. Yesterday's tough-minded leaders and their historical approaches to leadership can be damaging in today's organizations if applied incorrectly. The leaders that will succeed the most in the future will be the ones that enable others to learn, and in a learning organization nothing is more important than encouraging and inspiring learning.[54]

> Many leaders whose tactics may have been acceptable to organizations in the past will find that the same approaches are unacceptable in learning organizations of the future. Hard-nosed managers who single-handedly determine team direction, make key decisions, and push employees may prove destructive in today's organizations. Such managers have not realized that the organization has evolved from a structure based on steady-state control to one that thrives on learning, empowerment, and continuous change.[55]

It can be more effective to empower a team than it is to control one, and the leaders that will do this the easiest will have leadership styles that resemble that of a teacher, coach, and a mentor. Leaders in learning organizations should be expected to take the time to encourage the ideas of others, motivate the team to consider perspectives previously not considered, and put team members into positions where they can be the most effective.

> Leaders look forward to the future. They hold in their minds ideas and visions of what can be. They have a sense of what is uniquely possible if everyone works together for a common purpose. Leaders are positive about the future, and they passionately believe that people can make a difference. But visions seen only by the leaders are insufficient for generating organized movement. Leaders must get others to see the exciting future possibilities. They breathe life into visions. They communicate hopes and dreams so that others clearly understand and share them as their own. They

---

[53] Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military*, (Ithaca, NY Ithaca: Cornell University Press, 1994), 20–58.

[54] Alan T. Belasen, *Leading the Learning Organization: Communication and Competencies for Managing Change* (Albany: SUNY Press, 1999), 339.

[55] Marquardt, *Building the Learning Organization*, 94.

show others how their values and interests will be served by the long-term vision of the future.[56]

Leaders in learning organizations must also be approachable, and vulnerability should not be misinterpreted as weakness. Only through two-way learning and dialogue will leaders and teams expose each other to viewpoints they might not have otherwise considered.

When selecting team members, leaders should strive to identify individuals that are not afraid of change, ask hard questions, are intellectually curious and work hard to improve themselves. They must also be willing to bravely challenge the status quo. Leaders should not be dissuaded by individuals that are dissimilar from each other, as diversity of thought is one of the greatest gifts of a learning organization. The best teams are made up of people who understand their strengths and weaknesses and use the collective talents of a team to improve their strengths and compensate for their weaknesses.

3. Encouraging Team Behavior

The strongest teams are the ones that are encouraged to be actively engaged and share their learning with each other. This type of proposal can be met with skepticism, as most military organizations are accustomed to standardized processes and are very resistant to change. Most people tend to resist change because they fear a loss of control or are afraid of uncertainty. Military individuals especially have concerns about job performance and perceived competence when given unfamiliar assignments, and they fear a departure from past procedures considered successful, or at least adequate.[57] This is why a learning organization engages people at all levels, because their involvement helps to reduce animosity and gives them some control over the changes being made. Only when team members feel actively engaged and in control, will they feel safe to collaborate, make suggestions and share information with each other more freely.

---

[56] James M. Kouzes and Barry Z. Posner, *The Leadership Challenge: How to Make Extraordinary Things Happen in Organizations* (Hoboken, New Jersey: Jossey-Bass, 2017), 100.

[57] Rosabeth Moss Kanter, "Ten Reasons People Resist Change," *Harvard Business Review*, September 25, 2012, https://hbr.org/2012/09/ten-reasons-people-resist-chang.

It is essential to involve team members in the development of strategy. According to Sarder, "collaboration, innovation, experimentation, risk-taking, and information sharing are hallmarks of a learning organization."[58] Oftentimes the best solutions come from experienced workers, not corporate headquarters. Therefore, a learning organization reduces dependency on specific decision makers and instead pushes as much responsibility as possible to the individuals most capable of making the decision. This trust and delegation of authority shifts power and learning to where the best information and greatest need exists, away from the conference room and instead to the factory floor. Learning organizations understand that empowered teams often make better decisions than corporate leaders, because they are so close to the action, they have real-time information and can make faster and better decisions. According to Marquardt, "learning organizations take brave, bold steps to encourage as many people as possible to experiment, innovate, and get out of the habit of asking for permission and waiting for instructions."[59]

Along with empowerment, learning organizations share responsibility. They do not assign tasks to individuals; they assign them to teams. Teams share responsibility for the collection and transfer of knowledge to others. The best teams are often made from individuals across different career fields. Job rotation, lateral transfers and team mixing are effective ways to share knowledge, because subject matter experts are put into positions where they can ensure the successful transmission of their knowledge. Team members that bring new perspectives are also more willing to ask the "dumb" questions that can lead to new insights.[60]

Finally, encourage constant open and honest feedback. A team that cannot be honest with itself is doomed to fail. A team needs to collectively acknowledge what is working, and what is not. It is difficult to succeed when leadership goes against the best impulses of its employees.[61] If team members are unclear or do not understand the

[58] Sarder, *Building an Innovative Learning Organization*, 17.

[59] Marquardt, *Building the Learning Organization*, 67, 102–103.

[60] Marquardt, 149–51.

[61] Peter Kline, *Ten Steps to a Learning Organization - Revised*, 2nd edition (Arlington: Great River Books, 2015), loc 820 of 5759.

requirements or priorities of leadership, then a gap exists that must be bridged. This goes back to building shared vision, without which it is nearly impossible to build a creative environment.

C. THE LEARNING ADVANTAGE

> An organization's ability to learn, and translate that learning into action rapidly, is the ultimate competitive advantage.
>
> —Jack Welch[62]

> In this rapidly changing, highly competitive environment, learning organizations have a crucial advantage. They can respond more quickly and effectively to change. They are better able to keep ahead of the competition by coming up with innovative products and services. They are less likely to become mired in inefficient practices, more able to address problems quickly, and better at operating efficiently. Crucially, they are far more likely to attract and retain the best employees.[63]

1. Quantum Leaps

> Imagination is everything. It is the preview of life's coming attractions.
>
> —Albert Einstein[64]

In the 1920s, Einstein introduced the world to quantum physics, looking at the world at the subatomic level, where there are discrete events and undefined relationships. A sudden, highly significant advance or breakthrough is known as a quantum leap.[65] A learning organization understands that it cannot predict anything with certainty, which forces it to change the way it thinks and attempts to solve problems. An inability to adapt or survive means to become extinct, like the dinosaur. A learning organization can not only survive a quantum leap but also *succeed* through them. "Continuous improvement means

---

[62] "Jack Welch Quote," BrainyQuote, accessed March 10, 2021, https://www.brainyquote.com/quotes/jack_welch_173305.

[63] Sarder, *Building an Innovative Learning Organization*, 10.

[64] "Einstein Quote," BrainyQuote, accessed March 2, 2021, https://www.azquotes.com/tag/imagination.

[65] "Definition of Quantum Leap," Dictionary.com, December 15, 2020, https://www.dictionary.com/browse/quantum--leap.

that every quantum leap becomes an opportunity to learn and therefore prepare for the next quantum leap. If we learn faster than our competitors, the time span between leaps reduces and progress accelerates."[66] A true quantum leap is when an organization creates new thinking and subsequent knowledge, rapidly enhancing itself instead of mere gradual improvement.[67]

2. Discussion versus Dialogue

> I never saw an instance of one or two disputants convincing the other by argument.
>
> —Thomas Jefferson[68]

Remember that discussion and dialogue, while often used interchangeably, have different meanings. The word *discussion* is often taken to mean *speaking together*, whereas the word *dialogue* is usually taken to mean *thinking together*.

> Dr. David Bohm points out that the word "discussion" has the same root as percussion and concussion. It suggests something like a "ping-pong game where we are hitting the ball back and forth between us." In such a game the subject of common interest may be analyzed and dissected from many points of view provided by those who take part. Clearly, this can be useful. Yet, the purpose of a game is normally "to win" and in this case winning means to have one's views accepted by the group. You might occasionally accept part of another person's view in order to strengthen your own, but you fundamentally want your view to prevail." A sustained emphasis on winning is not compatible, however, with giving first priority to coherence and truth. Dr. Bohm suggests that what is needed to bring about such a change of priorities is "dialogue," which is a different mode of communication. By contrast with discussion, as Senge also pointed out, the word "dialogue" comes from the Greek *dialogos*. *Dia* means through. *Logos* means the word, or more broadly, the meaning. Bohm suggests that the original meaning of dialogue was the "meaning passing or moving through … a free flow of meaning between people, in the sense of a stream that flows between two banks." In dialogue, Bohm contends, a group accesses a

[66] Marquardt, *Building the Learning Organization*, vii.

[67] Marquardt, *Building the Learning Organization*, 17–18, 151, 248.

[68] Thomas Jefferson, "Extract from Thomas Jefferson to Thomas Jefferson Randolph, 24 Nov. 1808 Jefferson Quotes & Family Letters," The Jefferson Monticello, November 24, 1808, http://tjrs.monticello.org/letter/2300.

larger "pool of common meaning," which cannot be accessed individually.[69]

While ideas may be explored through discussion, they are best developed through dialogue. In a discussion people speak, in a dialogue people learn. The most effective learning happens in a space where individuals are open and searching for new ideas in casual, sometimes spontaneous ways. This allows their ideas to be tested and challenged, and the solutions that emerge are often the ones the mean the most to the team because they have survived this back-and-forth process. A dialogue allows a person to examine their own thinking, suspend their assumptions, and allows different perspectives to assist in finding solutions. Instead of arguing which recommendation is the best in a discussion, the product of a dialogue often turns into the recommendation.

In his book, *Dialogue and the Art of Thinking Together* (1999), William Isaacs defines dialogue "as a conversation with a center, not sides…a way of taking the energy of our differences and channeling it toward something that has never been created before, lifting us out of polarization and into a greater common sense as a means for accessing the intelligence and coordinated power of groups of people."[70] A dialogue is a team activity of thinking and reflecting, what Isaacs describes as not something you do *to* someone, but rather something you do *with* someone. A dialogue shifts the attitudes and perceptions of others and in turn does not attempt to make others understand us, but instead allows people to better understand themselves and each other.

3. Innovation versus Imitation

Innovations are often described incorrectly. An organization may discover a best practice that it wishes to emulate, however this is not innovation, it is imitation. A best practice is also by definition a "past practice". When competitors copy each other, it is imitation, when an organization learns to create something new, it is innovation. The

[69] See David Bohm and Mark Edwards, statements from a series of "dialogues" held at Cambridge and pulled excerpts from their book *Thought, the Hidden Challenge to Humanity* (San Francisco: Harper & Row, 1990), quoted in Senge, *The Fifth Discipline*, chap. 11, paras. 22–23.

[70] William Isaacs, *Dialogue: The Art Of Thinking Together* (New York: Currency Publishing, 2008), chap. 1, para. 5.

difference between copying and creating is similar to imitation versus innovation. Innovation is also different from invention.

> On a cold, clear morning in December 1903, at Kitty Hawk, North Carolina, the fragile aircraft of Wilbur and Orville Wright proved that powered flight was possible. Thus, was the airplane invented; but it would take more than thirty years before commercial aviation could serve the general public. Engineers say that a new idea has been "invented" when it is proven to work in the laboratory. The idea becomes an "innovation" only when it can be replicated reliably on a meaningful scale at practical costs. If the idea is sufficiently important, such as the telephone, the digital computer, or commercial aircraft, it is called a "basic innovation," and it creates a new industry or transforms an existing industry. In these terms, learning organizations have been invented, but they have not yet been innovated.[71]

Invention is progress, but it normally only works in static environments, and the dilemma with imitation is that it has limits. Imitation can only carry an organization as far as current technology and existing capabilities allow, whereas innovation has the potential to expand current capabilities through social comparison and interunit competition. A learning organization has an innovation advantage because through personal mastery its people are the best at what they do, and through team learning the organization is able to find solutions faster than its competitors because it is not hindered by unbending hierarchies nor bound to obsolete bureaucratic procedures.[72] Innovation will almost always be more expensive than imitation, but a learning organization does not see this as an expense, it is an investment that can reap quantifiable rewards for the organization committed to a long-term strategy.

Learning organizations enjoy a recruitment and retention advantage because people want to be employed in positions that provide opportunities for growth. A 2014 survey, *Global Human Capital Trends* by Deloitte found that investments in training and development led to higher job performance, and the primary reason individuals leave an organization is because of a lack of opportunity.[73] A 2012 GE Capital report also concluded

---

[71] Senge, *The Fifth Discipline*, loc 204.

[72] Sarder, *Building an Innovative Learning Organization*, 11.

[73] "Human Capital Trends 2014, Deloitte Saudi Arabia, Human Capital Consulting Services & Reports," Deloitte, accessed December 6, 2020, https://www2.deloitte.com/sa/en/pages/human-capital/articles/human-capital-trends-2014.html.

that the "training and development of employees is a critical business driver that not only leads to high-performing employees, but also to consistent workforce retention."[74]

4. Learning Speed

In a fast-changing world where affordable technology becomes a great equalizer, "people" will make the difference between success and failure. An investment made into the learning of employees gives an organization a sustained competitive advantage over its rivals. In 2019, Deloitte's *Global Human Capital Trends* report found that the speed of learning is a key competitive advantage.[75]

> In a world where technology is changing jobs and people are living longer lives with more diverse careers, organizations have not only an opportunity, but a responsibility, to reinvent learning so that it integrates into the flow of work—and life," Deloitte conclude. "In the age of the social enterprise, organizations will realize that creating and maintaining a culture of lifelong learning is not just part of their mission and purpose but is what gives their workers meaning both in and out of the workplace.[76]

Just as a learning organization navigates quantum leaps, it constantly reevaluates itself, committing to redesigning jobs, reinventing work, and reskilling workers. A successful learning organization is the first to adapt to a changing environment, sustaining its competitive advantage over its rivals, and the organization that learns how to do this the fastest has the long-run advantage. A more traditional corporate or industrial organization cannot adapt as quickly, regardless how many times it shuffles staff or right-sizes itself.[77]

According to Knott, the organizational IQ of an organization helps to indicate its learning speed. Knott went on to conclude "that firms need to be smarter—being smarter

---

[74] "Learning by Doing: GE's Approach to Developing People," GE Capital, 2012, accessed December 6, 2020, https://www.gecapital.com//en/pdf/GE_Capital_Example_Learning_By_Doing.pdf. See also Sarder, 11.

[75] Deloitte, *Leading the Social Enterprise: Reinvent with a Human Focus*, 2019, https://www2.deloitte.com/content/dam/insights/us/articles/5136_HC-Trends-2019/DI_HC-Trends-2019.pdf.

[76] Adi Gaskell, "Speed Of Learning As The New Competitive Advantage," *Forbes,* June 10, 2020, https://www.forbes.com/sites/adigaskell/2019/06/10/speed-of-learning-as-the-new-competitive-advantage/.

[77] Marquardt, *Building the Learning Organization*, 79.

(having organizational higher IQ) provides greater returns to its own R&D."[78] The *smarter* organization with the ability to learn the fastest will also be the organization first to adapt, survive, and succeed where other organizations fail.

D. PSYCHOLOGICAL SAFETY

> No passion so effectively robs the mind of all its powers of acting and reasoning as fear.
>
> —Edmund Burke [79]

Many managers still believe in the power of fear to motivate. This twentieth century industrial model may have worked on factory floors or working in fields, but it is not as effective to motivate in the twenty-first century. Fear only serves to entice someone to do their job and nothing more. Worse, fear inhibits learning, prevents the sharing of ideas, and impedes individuals from asking questions or raising concerns.[80] If individuals in an organization are afraid to speak up, the organization's ability to innovate and grow becomes threatened.

Table 1. How Psychological Safety Relates to Performance Standards.[81]

	Low Standards	**High Standards**
High Psychological Safety	*Comfort Zone*	*Learning & High Performance Zone*
Low Psychological Safety	*Apathy Zone*	*Anxiety Zone*

[78] Anne Marie Knott, "R&D/Returns Causality: Absorptive Capacity or Organizational IQ," *Management Science* 54, no. 12 (November 2008): 2054–67, https://doi.org/10.1287/mnsc.1080.0933.

[79] "Edmund Burke Quote," Brainy Quote, accessed December 16, 2020, https://www.brainyquote.com/quotes/edmund_burke_138679.

[80] Amy C. Edmondson, *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth* (New York: Wiley Publishing, 2018), 13.

[81] Edmondson, *The Fearless Organization,* 18.

With fear comes the unintended consequence of silence. Innovation does not come from silence, and when individuals are afraid to speak up and voice concerns, it puts the organization and its customers at risk. Individuals that feel psychologically safe are more engaged, and more comfortable sharing knowledge even when their confidence is low. Modern work is becoming less simple and routine, it has become an environment where people need to multitask and work together which is why collaboration and the ability to speak up is so important.

> A LEARNING ENVIRONMENT DEPENDS ON SAFETY. Safety is a basic human need. It is indispensable at every stage of the growth and development of an individual or an organization. A learning organization provides continual permission and incentive for everyone in the organization to think well and benefit from the thinking of others. People dedicated to the challenge of creating a learning organization seek to provide a working environment that does not focus solely upon money, power, control, status, or superiority. Instead, it develops the capacity to be involved with a pair, a group, a team, or an organization, and to engage in networks that extend beyond the local group. Such associations enable a person to be constructive, and to feel honored, respected and recognized.[82]

Only in a psychologically safe environment can someone achieve their full potential and earn the confidence to experiment and fail without fear, guilt, or shame. A cohesive team is more open to new ideas and approaches, less protective of their personal image and status, and "facilitates non-defensive reactions and encourages members to be open to and speak up about new challenges."[83] Historically individuals have been afraid to speak up, as "innovative thinking can put people out of work just as mercilessly as non-thinking and failing to adapt to new challenges can, which is why people need to know that new ideas will not endanger their jobs."[84] A learning organization will reward risk-takers. Psychological safety does not mean removing someone from accountability, as the pressure to deliver results often fuels the passion that generates the best creativity that is often needed for the best collaboration and learning.

---

[82] Kline, *Ten Steps to a Learning Organization - Revised*, loc 2039.

[83] Abraham Carmeli, Daphna Brueller, and Jane E. Dutton, "Learning Behaviours in the Workplace: The Role of High-Quality Interpersonal Relationships and Psychological Safety," *Systems Research & Behavioral Science* 26, no. 1 (February 2009): 85, https://doi.org/10.1002/sres.932.

[84] Kline, *Ten Steps to a Learning Organization - Revised*, loc 2057.

William Kahn, known in business literature as the "Father of Employee Engagement", defined psychological safety as "feeling able to show and employ one's self without fear of negative consequences to self-image, status, or career... and where people felt safe in situations in which they trusted that they would not suffer for their personal engagement."[85]

Psychological Safety means letting people know that a change or suggestion will not jeopardize their careers and that they will not be punished for honest mistakes. A longer-range success outlook allows for short-range mistakes. Coaching and rewarding innovative thinking, experimentation, and providing opportunities for training and "practice fields" are all examples of building psychological safety.[86] If an organization seeks to incentivize positive behaviors and has a desire for skill learning to work, people will need opportunities to practice and make mistakes, and to be confident that they are working in a safe environment that they can feel comfortable coming forward if they identify a problem.

A 2019 report by the Navy's Vice Admiral McCollum emphasized that "psychological safety was discussed as a precondition for realizing a true learning culture, leadership was cited as its most important criterion. Without the right leaders, culture change and other large, transformative initiatives are likely to fail."[87] Leaders are what set the stage for a productive learning organization because they bring with them the soft skills necessary to engage this next-generation workforce. The next generation of millennial workers are much more engaged and in need of more continuous feedback when compared to their Generation X and Baby Boomer predecessors.[88] They prefer to always be learning

[85] William A. Kahn, "Psychological Conditions of Personal Engagement and Disengagement at Work," *The Academy of Management Journal* 33, no. 4 (December 1990): 708, https://doi.org/10.2307/256287.

[86] Schein, "How Can Organizations Learn Faster?," 89.

[87] Luke M. McCollum, *Industry Best Practices and Learning Culture* (Washington, DC: Office of the Chief of Naval Operations, 2019), https://www.nrc.gov/docs/ML1909/ML19093A030.pdf.

[88] Jacquelyn Smith, "Why Millennials Need Constant Feedback - Business Insider," Business Insider, March 10, 2014, https://www.businessinsider.com/why-millennials-need-constant-feedback-2014-3.

and growing, and they want to know how they are doing on a consistent basis.[89] Old ways of leading and previous human resource techniques will have to be updated if a modern organization wishes to retain its top performers. One of the best ways to combat this is to simply be as open and honest as possible, and introducing candor into daily conversations is a proven method of sustaining this type of creative environment. This is why psychological safety is such a key ingredient to a successful learning organization.

E. THE FOUR TYPES OF LEARNING ORGANIZATIONAL CULTURE

For the Navy, a *quick* transition from an annually appropriated bureaucracy to a more effective learning organization is unrealistic, but knowing the realities of where we are now, there are steps we can take in the present to become a better learning organization in the future.

Table 2. The Four Types of Learning Organizational Culture.[90]

Environmental Adaption: High	Internal Integration: Low	Internal Integration: High
	Competitive Culture - High Flexibility - Low Integration - Low Loyalty - Low Cultural Identity - Achieving to Quantitative Objectives - Individuals Working Against Each Other - Hesitant to Share Knowledge due to Competition	**Learning Culture** - Trend to Change - Knowledge Expansion - Sensitive and Responsive to External Changes - Complex Environment - Competitive Advantage - Informed about Environment - Encourages Innovation, Creativity and Learning - Organizational Commitment
Environmental Adaption: Low	**Bureaucratic Culture** - Inflexibility - Rigid Regulations and Rules - High Level of Centralism - Affirmative Leadership Style - Slow to Respond to External Changes	**Participative Culture** - Low Flexibility - High Integration - High Loyalty - Personal Commitment - Teams Working Together

[89] Adam Bryant, "Jeff Lawson of Twilio: When Ideas Collide, Don't Duck," *New York Times*, August 3, 2014, sec. Business, https://www.nytimes.com/2014/03/09/business/jeff-lawson-of-twilio-when-ideas-collide-dont-duck.html.

[90] Created by the author, adapted from research conducted by Angelika Wodecka-Hyjek, "A Learning Public Organization as the Condition for Innovations Adaptation," *Procedia - Social and Behavioral Sciences* 110 (January 24, 2014): 148–55, (see also Fard, Rostamy and Taghiloo, 2009).

Just as learning organizations are not created overnight, a learning organization cannot be developed quickly, but there are steps that can be taken immediately that serve as the small course corrections that can have profound positive effects in the future, which will be discussed further in succeeding chapters.

III. EXTENSION AND SYNTHESIS FROM LITERATURE

A. EVOLUTION OF THE LEARNING ORGANIZATION

There is a consensus among the literature that becoming a learning organization means making a long-term commitment to organizational improvement and continuous learning. For this to happen, an organization needs an organizational structure that is supportive of its members, and a learning culture that is conducive to education. It is difficult to see through the lens of this "bigger picture," as many organizations may feel the urge to address the smaller issues of a larger problem, primarily because, it is easier, and often simpler to measure results and turn them into a proposed solution. Once a problem has been identified, it is much easier to concentrate on grooming or developing a specific group of people, focus on one department, instead of tackling something larger, perhaps even systemic, in the larger organization. While these targeted approaches may solve problems in the short-term, they often fail to address the larger issues that hold organizations back, which prevents organizations from adapting and improving their policies and procedures over the long-term.

1. Previous Definitions and Current Gaps

A lot has been written about "how to build" a learning organization since Senge's pioneering work in the 1980s and early 1990s, and the conceptualization of what makes a learning organization has evolved during that time. "Senge was quite high-level, he was kind of visionary in his day, but people struggled to implement his ideas because they weren't actionable enough, and it was just a bit too complex….too many disciplines, too many rules, and hard to actually do it."[91] The groundbreaking disciplines he brought forward have been expanded and further explored by several organizational learning experts since his original work, many of them working with Senge himself to further understand how to apply the disciplines and pragmatically build a learning organization in a diverse variety of fields.

[91] Jeffrey Dalto, "How to Become a Learning Organization (An Interview with Michelle Ockers)," *Convergence Training*, April 22, 2019, https://www.convergencetraining.com/blog/how-to-become-a-learning-organization.

Tom Kramlinger noted how the term "learning organization" began popping up in the early 1990s, concluding it was a result both of the sudden popularity of Senge's book, *The Fifth Discipline*, and due to a perceived rush for organizations to reevaluate business practices due to the demands of transitioning from the industrial age to the information age.[92] Kramlinger also notes that prior to Senge and Garratt's individual works, workforce training was very specific, which often resulted in the creation of courses or classes measured to fit specific individuals and give them specific skills through various curriculum. Prior to the focus on learning organizations, organizational learning in the 1980s stressed the importance of "teams", which evolved into Senge's discipline of team learning becoming a larger unit of focus in the 1990s, with more scrutiny on workplace culture and organizational structures. Kramlinger also had his own working definition of a learning organization, describing it as "a large body of aligned individuals whose members at all levels spontaneously learn and innovate in ways that promote the well-being and mission of the organization."[93] Kramlinger stressed that learning must be a goal for everyone in an organization, not just top management.[94]

There have been a wide variety of opinions and definitions regarding what specifically a learning organization is. What most definitions have in common, is that there is near unanimous consent that being a learning organization means having the ability to adapt, challenge assumptions and existing practices, and question how the organization thinks and learns.

In his book, *Workplace Learning* (2019), Nigel Paine highlights that the most important pieces to have in place before a learning organization can grow are trust, collaboration, sharing, and a clear sense of purpose. Paine stresses that if an organization cannot establish a clear sense of purpose and a high-trust environment, nothing changes. He also illustrates how a learning culture is just as important as learning itself, as "learning

[92] Tom Kramlinger, "Training's Role in a Learning Organization," *Training* 29, no. 7 (July 1992): 46, http://search.proquest.com/docview/203393768/abstract/9335F4E223964A33PQ/1.

[93] Kramlinger, 48.

[94] Kramlinger, 48.

itself needs a strong culture in which to grow and flourish, rather like bacteria in a petri dish."[95]

David Garvin's 1993 *Harvard Business Review* article, *Building a Learning Organization*, acknowledged that before Senge's book, *The Fifth Discipline*, the term "learning organization" and its actual meaning was subjective and confusing, as it meant different things to different people and different types of organizations. This article remains one of today's most heavily cited pieces of literature for modern day organizations wishing to transition, as Garvin offers a slightly more specific yet understandable framework for organizations to follow. Garvin's work focuses on the "Three M's", which are Meaning, Management, and Measurement:

> Most discussions of learning organizations finesse more complicated issues. Their focus is high philosophy and grand themes, sweeping metaphors rather than the gritty details of practice. Three critical issues are left unresolved; yet each is essential for effective implementation. First is the question of *meaning*. We need a plausible, well-grounded definition of learning organizations; it must be actionable and easy to apply. Second is the question of *management*. We need clearer guidelines for practice, filled with operational advice rather than high aspirations. And third is the question of *measurement*. We need better tools for assessing an organization's rate and level of learning to ensure that gains have in fact been made.[96]

Garvin also points out the difference between organizational learning and a learning organization, and that many organizations that excel at organizational learning, still fall well short of meeting the definition of a learning organization. Many organizations assume that these two terms mean the same thing, which they do not. While organizational learning is considered to be a *process*, the learning organization is more considered the *structure*. This process versus structure, and understanding the differences between the two, is a central element of Paine's practical translation for both in his 2019 work. Garvin's five building blocks he deems necessary to earn the reputation of a learning organization are:

1. Systematic Problem-Solving

[95] Nigel Paine, "Is a Learning Culture More Important than Learning?," *Training Industry* (blog), March 19, 2019, https://trainingindustry.com/articles/strategy-alignment-and-planning/is-a-learning-culture-more-important-than-learning/.

[96] David A. Garvin, "Building a Learning Organization," *Business Credit* 96, no. 1 (January 1994), 19.

2. Experimentation
3. Learning from Past Experience
4. Learning from Others
5. Transfer in Knowledge[97]

According to Garvin, systematic problem-solving means relying on the scientific method and data, never on guesswork nor assumptions. Experimentation searches for and tests new knowledge, embracing creativity, taking risks, and works to find new ideas, even if those ideas come from outside of the organization. They can also support demonstration projects that attempt to find and develop improved organizational capabilities, usually with a "clean slate" approach, starting from scratch not hindered by current practices. Learning from past experience means reviewing success and failure, capturing lessons learned and making them accessible to employees so they can easily find and learn from them. Learning from others means learning from other organizations in similar fields, as well as organizations from vastly different fields, as these organizations are great resources for new ideas. Garvin points out that "Roger Milliken calls this process SIS (Steal Ideas Shamelessly), which is a broader term for *benchmarking*."[98] Transfer in knowledge means sharing information broadly; it cannot simply reside at the top of an organization. These can consist of reports, videos, tours, but the best methods are the ones that provide first-hand experience, not just a document that reports on it. Temporary or permanent job-swapping within an organization is another great way to facilitate knowledge transfer.

Garvin also acknowledges that measuring the success of a learning organization can be difficult, as managers have long said "if you can't measure it, you can't manage it." He stressed that the biggest challenge regarding measurement techniques is that they too often focus on short-term results, and do not necessarily capture the "learning" that has been achieved by an organization. He does simplify some of Senge's work by emphasizing that in a learning organization, management must attempt to free up employees' time, and reduce pressure so that they feel comfortable taking the time to learn, brainstorm,

[97] Garvin, 21–26.

[98] Garvin, 24.

breakdown boundaries, exchange ideas, and experiment.[99] He concludes that a learning organization is not built overnight, but it will gradually push for a "subtle shift in focus, away from continuous improvement and toward a commitment to learning."[100]

According to Finger and Brand, a learning organization is "an ideal towards which organizations have to evolve in order to be able to respond to the various pressures they face…characterized by a recognition that individual and collective learning are key."[101] Schön explained a learning organization as acknowledging increasing change with a need for continuous learning. He further explained that organizations must learn to understand and manage their own transformation in response to changing conditions and requirements, and that "we cannot expect new stable states that will endure for our own lifetimes."[102] In his book, *Living on Thin Air. The New Economy* (1999), Leadbeater explains that despite most economies primary goal of profit over everything else, developing intellectual capital and knowledge is essential, and that organizations must invest in people instead of just technology, as failure to do so will spell disaster.[103]

Most criticisms of Senge tend to center on his work being "too idealistic," which is somewhat ironic as he describes himself as an "ideal pragmatist." "John Van Maurik has suggested that Senge is simply ahead of his time, as his ideas are insightful and revolutionary. He also said it is unfortunate that more organizations have not taken his advice and have remained geared to the quick fix."[104]

> There have been various attempts by writers to move "beyond" the learning organization. (The cynics among us might conclude that there is a great deal of money in it for the writers who can popularize the next 'big thing' in

[99] Garvin, 28.

[100] Garvin, 28.

[101] Mark Easterby-Smith, Luis Araujo, and John G. Burgoyne, eds., *Organizational Learning and the Learning Organization: Developments in Theory and Practice*, (London: SAGE Publications Ltd, 1999), Chap. 8, Matthias Finger, Silvia Bürgin Brand, *The Concept of the "Learning Organization" Applied to the Public Sector.*

[102] Donald A. Schön, *Beyond the Stable State: Public and Private Learning in a Changing Society*, 0 edition (London: Maurice Temple Smith Ltd, 1971).

[103] C. W. Leadbeater, *Living On Thin Air: A New Economy* (London: Viking, 1999).

[104] Mark K. Smith, "Peter Senge and the Learning Organization," *The Encyclopedia of Pedagogy and Informal Education* (blog), April 4, 2013, https://infed.org/mobi/peter-senge-and-the-learning-organization. See also, John Van Maurik, *Writers on Leadership* (London: Penguin Books Ltd, 2001), 201.

> management and organizational development). Thus, we find guides and texts on *the developing organization, the accelerating organization,* and *the ever-changing organization.* Peter Senge, with various associates, has continued to produce workbooks and extensions of his analysis to several of these particular fields.[105]

Most authors tend to agree with Senge's original work, with many working to expand his disciplines instead of criticizing. More recent research has moved towards Edmondson and Moingeon's work on psychological safety and building trust in organizations, and how it relates to the increased focus on Cohen and Prusak's research on social capital.[106] While human capital describes an investment in an individual's experience and skills, social capital is an investment in social relationships that make an organization more than a loose collection of individuals and draws them into groups.[107]

2. Meeting Criteria

> It is not the strongest of the species who survive, nor the most intelligent; rather it is those most responsive to change.[108]
>
> —Charles Darwin

It is difficult to find living-examples of learning organizations, and some feel that the definition is too broad. Many however, can point to examples of what a learning organization is *not*, such as General Motors before its NUMMI alliance with Toyota, or Kodak, and its blind spot to digital video technology.[109] More recently, Boeing and its

---

[105] Mark K. Smith, "The Learning Organization: Principles, Theory and Practice," *The Learning Organization* (blog), October 19, 2019, https://infed.org/mobi/the-learning-organization/.

[106] Mark K. Smith, "The Learning Organization: Principles, Theory and Practice. See also Amy C. Edmondson and Bertrand Moingeon, "From Organizational Learning to the Learning Organization," *Management Learning* 29, no. 1 (March 1998): 5–20, https://doi.org/10.1177/1350507698291001, and Don Cohen and Laurence Prusak, *In Good Company: How Social Capital Makes Organizations Work*, (Boston: Cambridge: Harvard Business Review Press, 2001), 4.

[107] Don Cohen and Laurence Prusak, *In Good Company: How Social Capital Makes Organizations Work* (Cambridge: Harvard Business Review Press, 2001), 4.

[108] Olivier Serrat, "Building a Learning Organization," in *Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance*, ed. Olivier Serrat (Singapore: Springer, 2017), 57–67, https://doi.org/10.1007/978-981-10-0983-9_11.

[109] Giovanni M. Gavetti and Simona Giorgi, "Kodak and The Digital Revolution," *Harvard Business School*, November 16, 2004, https://www.hbs.edu/faculty/Pages/item.aspx?num=31757.

string of mishaps with the 737 MAX.[110] Many organizations that could claim learning organization status in the past, have not been able to maintain their reputations over time. While unfortunate, it is also completely normal, as the literature reminds us that becoming a learning organization is not a destination, but more of a continuous journey, where organizations must adapt to a changing world by continuing to learn, adapt, and survive.

In their 2008 article, *Is Yours a Learning Organization?*, Garvin, Edmondson and Gino point out three factors that commonly prevent many organization's from reaching their desired learning organization status:

> First, many of the early discussions about learning organizations were paeans to a better world rather than concrete prescriptions. They overemphasized the forest and paid little attention to the trees. As a result, the associated recommendations proved difficult to implement—managers could not identify the sequence of steps necessary for moving forward. Second, the concept was aimed at CEOs and senior executives rather than at managers of smaller departments and units where critical organizational work is done. Those managers had no way of assessing how their teams' learning was contributing to the organization as a whole. Third, standards and tools for assessment were lacking. Without these, companies could declare victory prematurely or claim progress without delving into the particulars or comparing themselves accurately with others.[111]

According to Garvin et al, "organizational research over the past two decades has revealed three broad factors that are essential for organizational learning and adaptability: a supportive learning environment, concrete learning processes and practices, and leadership behavior that provides reinforcement."[112] These authors refer to these three factors as the "building blocks" of a learning organization, with several learning organization assessments and surveys have been developed with these factors in mind.

The first building block, a "supportive learning environment, includes psychological safety, appreciation of differences, openness to new ideas, and time for

---

[110] Sandra J. Sucher, "How Boeing Should Have Responded to the 737 Max Safety Crisis," *Harvard Business Review*, March 14, 2019, https://hbr.org/2019/03/how-boeing-should-have-responded-to-the-737-max-safety-crisis.

[111] David A. Garvin, Amy C. Edmondson, and Francesca Gino, "Is Yours a Learning Organization?," *Harvard Business Review*, March 2008, 2, https://hbr.org/2008/03/is-yours-a-learning-organization.

[112] Garvin, Edmondson, and Gino, 3.

reflection."[113] All of these subcomponents help to create a learning environment that is tolerant of opposing ideas, and encourages asking questions and taking risks in designated practice fields without fear of punishment. Leadership can make or break a supportive learning environment, as time to question and reflect must be allotted for (and sometimes, "scheduled"), otherwise there is no time for analysis and constructive review of an organization's activities.

The second building block, concrete learning processes and practices, involves the sharing of information, experimentation, intelligence gathering to track trends, analysis to recognize and resolve issues, and training and education for all employees. Knowledge must be shared, laterally and vertically within an organization. Audits, lessons-learned reports, and after-action reviews should also be conducted and shared across the organization where possible. These types of processes answer key questions such as, "What did we set out to do? What actually happened? Why did it happen? What do we do next time?"[114] These are the types of questions that help an organization decide which processes need to be improved (or abandoned) based on their effectiveness and relevancy as trends and requirements continue to change.

The third building block, leadership that reinforces learning, illustrates the importance of leadership's behavior and how it influences (or prevents) learning in an organization. When leaders take part in back-and-forth knowledge sharing, engage in constructive debate and dialogue, and not just entertain but show genuine appreciation for alternate points of view, individuals will be more likely to keep contributing and share even more new ideas in the future.

These three building blocks are a good starting point to gauge how to become more like a learning organization, and have been used to create assessments similar to the following example:

[113] Garvin, Edmondson, and Gino, 3.

[114] Garvin, Edmondson, and Gino, 4.

Table 3. Example of Learning Organization Assessment Survey.[115]

Building Blocks and Their Subcomponents	Scaled Scores: Bottom quartile	Second quartile	Median	Third quartile	Top quartile
Supportive Learning Environment					
• Psychological safety	31–66	67–75	76	77–86	87–100
• Appreciation of differences	14–56	57–63	64	65–79	80–100
• Openness to new ideas	38–80	81–89	90	91–95	96–100
• Time for reflection	14–35	36–49	50	51–64	65–100
Learning environment composite	31–61	62–70	71	72–79	80–90
Concrete Learning Processes and Practices					
• Experimentation	18–53	54–70	71	72–82	83–100
• Information collection	23–70	71–79	80	81–89	90–100
• Analysis	19–56	57–70	71	72–86	87–100
• Education and training	26–68	69–79	80	81–89	90–100
• Information transfer	34–60	61–70	71	72–84	85–100
Learning processes composite	31–62	63–73	74	75–82	83–97
Leadership That Reinforces Learning					
Composite for this block	33–66	67–75	76	77–82	83–100

Note: The scaled scores for learning environment and learning processes were computed by multiplying each raw score on the seven-point scale by 100 and dividing it by seven. For learning leadership, which was based on a five-point scale, the divisor was five.

Kaiser Permanente uses a similar assessment survey that expands the original building blocks and applies them to health care organizations. This method utilizes a version of Malcom Baldrige's framework connecting data received at the national level and connecting it to regions, medical centers, and unit-based teams (UBT) and unit-based

[115] Garvin, Edmondson, and Gino, 7.

leader (UBL) daily activities, the results of which highlight gaps between expectations and actual performance.[116]

Table 4. Relationships Between Learning Organization Building Blocks, Five Capabilities of High-Performing Health Care Organizations, and Characteristics of Learning Organizations Identified by Others.[117]

Table 1. Relationships Between Learning Organization Building Blocks, Five Capabilities of High-Performing Health Care Organizations, and Characteristics of Learning Organizations Identified by Others*

Building Block	Related Capacities of High-Performing Health Care Organizations	Learning Organization Dimensions Identified by Others
Real-time sharing of meaningful performance data	Measurement	Baldrige: Research and development; learning is driven by opportunities to effect meaningful, significant change and to innovate. Senge: Systems thinking, mental models, building shared vision Garvin et al.: Concrete learning process (information collection, analysis) Crossan et al.: Institutionalizing
Formal training in problem-solving methodology	Improvement capacity	Baldrige: Learning results in solving problems at root cause. Senge: Personal mastery, mental models Garvin et al.: Concrete learning process (experimentation, education, training) Crossan et al.: Integrating, institutionalizing
Workforce engagement and informal knowledge sharing	Systems approach to improvement, culture of improvement	Baldrige: Workforce, patient, and stakeholder ideas and input; learning is practiced at personal, work unit, and organizational levels and is a regular part of daily work; learning is focused on building and sharing knowledge throughout the organization. Senge: Systems thinking, team learning Garvin et al.: Supportive learning environment (appreciation of differences, openness to new ideas, time for reflection, openness to new ideas) Crossan et al.: Intuiting, interpreting, integrating
Leadership structures, beliefs, and behaviors	Leadership priority setting, culture of improvement	Baldrige: Learning is driven by opportunities to effect meaningful, significant change and to innovate. Senge: Building shared vision Garvin et al.: Leadership that reinforces learning Crossan et al.: Integrating, institutionalizing
Internal and external benchmarking	Measurement, leadership priority setting	Baldrige: Research and development, best-practice sharing, benchmarking Senge: Building shared vision, mental models Garvin et al.: Concrete learning process (information transfer) Crossan et al.: Integrating, institutionalizing
Technical knowledge sharing	Systems approach to improvement	Baldrige: Learning is focused on building and sharing knowledge throughout the organization. Senge: Systems thinking, team learning Garvin et al.: Concrete learning process (information transfer) Crossan et al.: Integrating, institutionalizing

* Adapted from National Institute of Standards and Technology: *Health Care Criteria for Performance Excellence*. http://www.nist.gov/baldrige/publications/hc_criteria.cfm (last accessed Oct. 17, 2011); Senge P.M.: *The Fifth Discipline: The Art and Practice of the Learning Organization.* New York City: Doubleday, 1990; Crossan M.M., Lane H.W., White R.E.: An organizational learning framework: From intuition to institution. *Academy of Management Review* 24:522–537, Jul. 1999; Garvin D.A., Edmonson A.C., Gino F.: Is yours a learning organization? *Harv Bus Rev* 86:109–116, 134, Mar. 2008.

Culture, trends, and people change with time, as do their motivations and personalities, therefore it is important to understand that surveys need to remain relevant.

[116] Lisa Schilling et al., "Kaiser Permanente's Performance Improvement System, Part 4: Creating a Learning Organization," *Joint Commission Journal on Quality and Patient Safety* 37, no. 12 (December 2011): 532–43, https://doi.org/10.1016/s1553-7250(11)37069-9.

[117] Schilling et al., 534.

While the original assessment developed by Garvin, Edmondson, and Gino is a great starting point, organizations should ensure they are utilizing surveys that can capture their modern workforce, and ensure it applies to its individuals. For example, assessments may need to be modified to capture the workplace culture and knowledge sharing for different types of organizations, such as health care facilities, corrections departments, manufacturing plants, and defense organizations. Each organization will have at least a few slight differences that could impact the survey responses given for standardized survey questions, which could lead to different or even confusing results if the survey is not asking the right questions.[118]

Kramlinger also had his own simple criteria, stating that "when a company calls itself a learning organization, it is committing to at least some of the following assumptions:"

- Everyone can be a source of useful ideas.
- The people closest to the problem usually have the best ideas.
- Learning flows up as well as down in the organization.
- Nothing is sacred (except the governing vision and values).
- The process of open dialogue improves ideas.
- The more information people can access the better.
- New ideas are valuable.
- A mistake is simply an opportunity to learn.[119]

Kramlinger also asserted that a learning organization will educate its leaders to listen more effectively, work to connect with and develop subordinates, understand that some of the best solutions come from the factory floor, not the boardroom, and that trainers should "adopt policies that encourage and reward widespread and spontaneous learning."[120]

---

[118] Diane Worrell, "The Learning Organization: Management Theory for the Information Age or New Age Fad?," *Journal of Academic Librarianship* 21, no. 5 (September 1995): 351, https://doi.org/10.1016/0099-1333(95)90060-8. Also credit to author Michele Kiefer regarding the application of learning organization principles for the National Institute of Corrections, in *The Corrections Learning Organization*, October 2016.

[119] Kramlinger, "Training's Role in a Learning Organization," 48.

[120] Kramlinger, 49.

3. Creating Initial Progress

When it comes to building a learning organization, many leaders do not know where to begin. While organizations may find some short-term success in the form of improved training or organizational learning, they struggle to build a learning organization because the bulk of their efforts are dedicated to the *process* of learning, not the *structure* of learning. Organizations often look *backwards* for answers, lessons-learned and after-action reports are excellent tools, but it is the ability to look *forward* and understand a changing environment that leads an organization to adapt and survive. In his article, *How Can Organizations Learn Faster*, Edgar Schein explained that the challenge leaders used to face was managing *change*, and the new challenge is managing *surprise*. Schein argues that organizations that want to survive must learn to adapt faster than their competitors, and to do this an organization needs "insight". This can be accomplished by improved communication between different groups and levels of a company and developing mechanisms for continuous learning. Change management groups made up of individuals from different departments, steering committees and task forces can also help to change course and provide insight so that an organization can change direction. The first step for any organization that has a problem, is to acknowledge that a problem exists. Once that acknowledgement has been made, an organization can begin solving problems and developing solutions quickly. Committees and task forces can get to work solving problems in as little as a few days or even weeks, especially if they are allowed to work rapidly for days/weeks at a time uninterrupted, instead of the often used one-meeting-per-week routine many teams are often held to. Meetings can also be held offsite for a few days if it helps eliminate distractions and generate perspective. Regardless of the decisions that follow, acknowledging a problem and getting to work on it quickly are the necessary first steps for any organization wishing to improve.

Garvin concedes that learning organizations are built over a long period of time, and the ones that have become successful examples "are the products of carefully cultivated attitudes, commitments, and management processes that have accrued slowly and steadily

over time."[121] He also points out that any organization wanting to begin this transformation can take some modest immediate steps to get started. His recommended first step is to "foster an environment that is conducive to learning," which allows time to think about strategic plans, focus on mission, reflect, analyze, assess, and question existing practices.[122] The key to this step is that management needs to make time for it to happen. Without scheduled time or space to complete these activities, learning is often diminished if teams feel pressured or rushed. A second step is to break down boundaries between different groups and levels of individuals and teams. "Boundaries inhibit the flow of information; they keep individuals and groups isolated and reinforce preconceptions."[123] There are strong benefits to learning vertically and laterally, as this helps to eliminate blind spots and helps to build the insight that Schein stressed was so important.

In addition to insight, Kramlinger also stresses that an early step to becoming a learning organization is building self-sufficiency within the ranks. This is accomplished by teaching managers how to develop subordinates, so they have confidence and can learn and make their own decisions. A learning organization often builds networks of volunteers that serve as learning consultants, which are individuals that serve as liaisons between front-line workers and leadership. Learning consultants help to promote and elevate solutions that come from the factory floor, which come from the individuals closest to the problems whose solutions are often the most effective due to their direct hands-on experience.[124]

B. THE THREE TYPES OF ORGANIZATIONAL LEARNING

Despite some overlap, a learning organization and organizational learning are not synonymous, although a learning organization will have a strong understanding of organizational learning. Organizational theorists Argyris, Schön, and Bateson pioneered what are today known as the three different types of organizational learning:

---

[121] Garvin, "Building a Learning Organization.", 28.

[122] Garvin, 28.

[123] Ibid.

[124] Kramlinger, "Training's Role in a Learning Organization," 49.

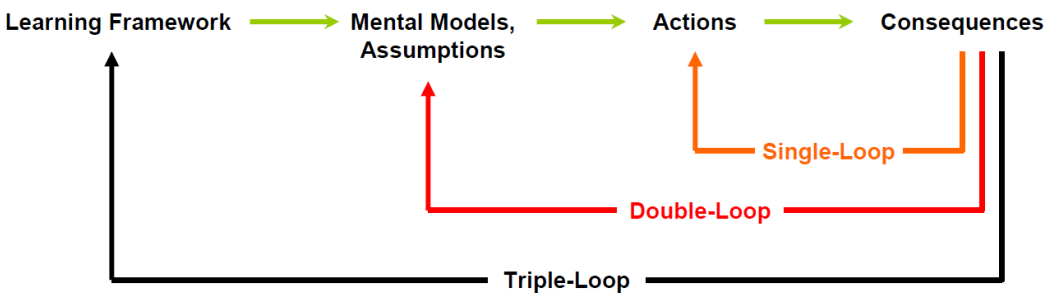


Figure 5. Learning Loops.[125]

Table 5. Three Types of Organizational Learning. [126]

Three Types of Organizational Learning

Type of Organizational Learning	Type of Work (Change)	Appropriate for What Kind of Situation?	Results in a Change of Action?	Challenges your Assumptions and Mental Models?	Challenges your Learning Framework?	Focus of Learning Type?
Single-Loop Learning	Technical	When tackling routine, repetitive issues	Yes	No	No	Improving
Double-Loop Learning	Technical/ Adaptive	When tackling complex, non-programmable issues	Yes	Yes	No	Understanding and Improving
Triple-Loop Learning	Adaptive	When you want to learn how to learn	Yes	Yes	Yes	Transforming, Understanding, and Improving

Single-loop learning: Occurs when errors are detected and corrected without modifying a firm's existing policies, goals, or assumptions.

Double-loop learning: Occurs when errors are detected and corrected such that a firm's existing policies, goals, and/or assumptions are called into question and challenged.

Triple-loop learning: Occurs when firms learn how to effectively carry out single- and double-loop learning. This requires identifying the various factors (both individual and organizational) that help to facilitate organizational learning. With triple-loop learning, firms "learn how to learn."

NOTE: The information in this table is based on work by Chris Argyris, Donald Schön, Ron Heifetz, Gregory Bateson, and Peter Senge.

[125] Soren Eilertsen, and Kellan London, "Modes of Organizational Learning," 2005, 3.

[126] Eilertsen, and London, "Modes of Organizational Learning," 2005, 4.

1. Single-Loop Learning

Single-loop learning focuses mostly on actions, specifically the need for individuals to learn new skills through assimilation and repetition.[127] In a single-loop framework, conditions or errors are detected which necessitate a response, at which point the individual inputs a modification or correction to remedy the situation. In one of Argyris' examples, a thermostat senses a change in temperature, recognizes the difference between expected and actual outcomes, and answers by heating or cooling in response, bringing the room to its assigned temperature. The same logic can be applied to many routine jobs with repetitive tasks.

While single-loop learning addresses the "how" in most workplace scenarios, it seldom answers the "why" behind them. While single-loop is excellent at removing symptoms, it often fails to eliminate causes, and is usually characterized as reactive vice proactive. Single-loop learning is still essential in all organizations, especially as refinement and improvement teach and enable a workforce to operate more efficiently with fewer errors as it gains experience. Single-loop learning often leads to small adjustments and quick fixes, but it does not question underlying assumptions, which is why additional learning types are required.

2. Double-Loop Learning

Double-loop learning takes the extra steps of questioning underlying assumptions and attempts to learn and improve from mistakes.[128] Double-loop learning examines whether existing practices, policies or procedures could be getting in the way, and forces an organization to challenge their existing assumptions. Double-loop learning helps an organization learn from mistakes while making changes to avoid repeating them. "With double-loop learning, organizational members must recognize the underlying patterns of their thinking and behavior, and in doing so, they fundamentally reshape their thoughts and actions. With this form of learning, error detection still occurs, but members challenge their

[127] "Single and Double Loop Learning," *Organizational Learning,* September 9, 2014, https://organizationallearning9.wordpress.com/single-and-double-loop-learning/.

[128] Eilertsen and London., *Organizational Learning,* September 9, 2014, 3.

mental models and assumptions to try and understand the existing organizational policies or structures that help to bring these errors about."[129]

According to Eilertsen and London, double-loop learning does not evolve from single-loop learning, as they are two different learning types, and both critically important in their respective situations. Where single-loop is most appropriate in routine and repetitive daily tasks, double-loop is more appropriate in more complex and unique scenarios, both of which are commonly faced simultaneously by many organizations.

3. Triple-Loop Learning

Triple-loop learning means that an organization does not just understand how to adapt, but it also has learned how to learn, what to learn, and has a stronger self-awareness of itself and surrounding environment. It is a deeper understanding of why an organization operates in a specific way.[130]

The term "triple-loop learning" gained increased attention and popularity with the release of *Organizational Learning: A Critical Review* in 2003.[131] Triple-loop learning is to organizational learning what systems thinking is to Senge's learning organization; it is what "links all of the local learning units into a unified learning organization… organizational members learn how to tap the collective knowledge embedded in various parts of the organization, and by learning how to learn over time, organizational members discover what facilitates or inhibits their learning and can thus produce new strategies to develop their knowledge."[132]

---

[129] Eilertsen, and London, "Modes of Organizational Learning," 3.

[130] Eilertsen and London, "Single and Double Loop Learning.", *Organizational Learning,* September 9, 2014

[131] Catherine L. Wang and Pervaiz K. Ahmed, "Organizational Learning: A Critical Review," *The Learning Organization* 10, no. 1 (January 1, 2003): 8–17, https://doi.org/10.1108/09696470310457469.

[132] Eilertsen, and London, "Modes of Organizational Learning, 4."

C. LEARNING ORGANIZATION WORK WRITTEN IN THE CONTEXT OF DOD

1. Previous Navy Reform Attempts

The Navy in recent years has stressed its desire to become more like a learning organization. In 2009, Chief of Naval Personnel Vice Admiral John C. Harvey said:

> A learning organization is one that cultivates change through its people. It adapts by encouraging them to be creative and share ideas. I believe our Navy is a learning organization. As part of my recent trip to the CENTCOM AOR, I was struck by the vast array of experience and skills our Sailors are acquiring executing their missions. As a learning organization we must institutionalize this knowledge along with the other critical lessons our Sailors are learning every day while executing our more traditional missions. To accomplish the required learning, and to ensure we begin evolving, we must first ensure we have a healthy learning environment underpinned by concrete practices and supportive leadership.[133]

Regarding the importance of psychological safety, one of the main tenets of a learning organization, Vice Admiral McCollum's 2019 report noted how a lack of psychological safety "inhibits employee trust and voice, thereby limiting feedback and learning, and once marginalized, organizational effectiveness and mission accomplishment decreases."[134] His team went on to observe:

> A common bureaucratic response to accidents, mistakes, and lack of performance, is to instill new or additional reporting requirements and oversight (structural improvements). However, absent improvements to the human interactions within the process, organizational 1earning is impeded. Structural changes can provide some measure of improved performance, but the results are typically sub-optimal without concurrent enhancements to the "human factor." A lack of trust, psychological safety, and other pre-conditions can cause employees to not report or under-report mistakes.[135]

The idea that the Navy can become a learning organization is not a new one, and some would even say the Navy's successfully made the transition before. Trent Hone, author of the 2018 book, *Learning War: The Evolution of Fighting Doctrine in the U.S.*

---

[133] John C. Harvey, "Navy as a Learning Organization," *Archived U.S. Fleet Forces Command Blog (2009-2012)* (blog), December 15, 2009, http://usfleetforces.blogspot.com/2009/12/navy-as-learning-organization.html.

[134] McCollum, *Industry Best Practices and Learning Culture*, 3.

[135] Ibid.

Navy, 1898–1945, explained that his main thesis is that the U.S. Navy at the beginning of the twentieth century became, what we call today, a learning organization.[136] Hone mentioned one of the points that struck him the most was how adaptable naval officers were at the start of the twentieth century. The Navy of one hundred years ago had "officers who developed experience and skills in many different specialties—surface ships, submarines, aviation, and politics—that together created an integrated fleet. Just as many development teams today encourage broad expertise across a variety of domains and technologies, the U.S. Navy of the early twentieth century encouraged officers to develop familiarity with different aspects of naval warfare."[137] Hone also implies that the answers to building a learning culture can be found by examining several early twentieth century naval examples, in which the Navy was able to foster self-organization, leveraging constraints and establishing clear goals. One of his most pointed examples is the transformation of naval surface warfare doctrine immediately after the attack at Pearl Harbor. As to the question regarding how the Navy was able to transform, Hone offered:

> The traditional answer is that the shock of Pearl Harbor forced the Navy out of its stodgy conservatism. The devastating strike of Japanese carrier airpower not only sank the battle fleet but forced the Navy to leave behind the "gun club" philosophy that had dominated its tactical thought in the interwar period (1919–39). "Battleship admirals" had failed to appreciate the nature of the technological changes taking place around them, had restricted experimentation, and had inhibited the development of modern approaches; the raid on Pearl Harbor freed the Navy of its shackles. It is a compelling narrative that has appeared in popular histories, authoritative analyses, and rigorously researched articles. It is also incorrect.
>
> The true story of how the Navy rapidly transformed is a remarkable one of innovative change in the face of dynamic technologies, budgetary constraints, and wartime stress. In the early years of the twentieth century, the Navy transitioned from a traditional institution to a modern, professional organization. This change was triggered by a new concept of American naval power and a revised view of the role of a modern naval officer. New approaches to officer education and new organizational structures followed, along with processes for experimenting with new ideas, gathering feedback

[136] Phil Beckman, "The U.S. Navy as a Learning Organization with Trent Hone," podcast, The Strategy Bridge, accessed November 13, 2020, https://www.stitcher.com/show/undefined/episode/the-u-s-navy-as-a-learning-organization-with-trent-hone-56757266.

[137] Trent Hone, "SMH 2018 and "Cross Functional" Officers, July 15, 2018, https://trenthone.com/tag/organizational-learning/.

> from the experience, and continually improving. These processes were core aspects of the Navy; as officers worked to understand how best to coordinate a modern fleet in combat, they collaboratively refined their tactics and kept their minds open to the possibility of new approaches, triggering a series of innovations.[138]

Viewing the U.S. Navy as what Hone calls a complex adaptive system (CAS), like a learning organization, understands the diversity of human systems and the role they play in the larger part of a team. Hone also examined the relationship between human systems, and complex systems, which are a shaped by constraints and historical circumstances. According to Hone, "constraints are essential to CAS; they govern the dynamic processes that lead to increasingly sophisticated organization and specialization, and channel the behavior of individuals in the system and focus their efforts, which can foster the development of new approaches."[139]

> The Navy of the early twentieth century demonstrated an ability to learn, innovate, and evolve that places it at the forefront of modern ideas regarding management, organizational structure, and innovation. Numerous theories have been advanced about how best to foster sustained organizational learning. Over a century ago, the Navy introduced a successful approach to harnessing new technologies advantageously in an extremely dynamic environment. It conducted regular experiments, engaged in cycles of learning, and continuously improved. During World War II, the pace of these cycles accelerated, and the Navy rapidly transformed. Victory in the Pacific was a result of the Navy's ability to foster evolutionary changes in its doctrine, an ability that had been developed and refined over prior decades…which has also been credited for enabling the Surface Warfare community to rapidly transform in what has been called one of the most innovative changes in history.[140]

Future Chief of Naval Operations (CNO), Admiral Ernest J. King was an early product of these constraints, as they created an environment that awarded those with ambition and talent in a new system of promotion, emphasizing the importance of learning. Shortly after King graduated in this new system, some of his most memorable peers followed soon after. "His contemporaries were the leaders who were, again like him, to see

---

[138] Trent Hone, *Learning War: The Evolution of Fighting Doctrine in the U.S. Navy, 1898–1945* (Annapolis: Naval Institute Press, 2018), xiii–xiv.

[139] Hone, 4.

[140] Hone, xiii.

the Navy through World War II. Harold R. Stark, a future CNO, graduated in 1903; William F. Halsey graduated a year later; Chester W. Nimitz was a graduate of the class of 1905; and Frank J. Fletcher and Raymond A. Spruance followed in 1906."[141]

Around this same period, the Navy demonstrated that it clearly understood the benefits of organizational learning, choosing to establish the Naval War College (NWC) in Newport, Rhode Island in 1884. The college's early presidents, Admirals Stephen B. Luce, and Alfred T. Mahan, reconceptualized the American naval officer. Luce understood that naval officers needed the highest levels of proficiency in strategy and military science, and that a broad field of knowledge requires study and reflection. Mahan stressed that naval warfare was an art that could be taught, and worked to enhance and improve the school's curriculum, emphasizing contextual analysis and collaborative learning."[142]

The officers produced by the Naval Academy and NWC during this period were extraordinary. These naval officers and their follow-on subordinates understood the value of sharing information, "demonstrating that a resilient officer network was emerging in the combat zone. Officers were sharing lessons better, learning from each other more readily, and refining their skills more rapidly. Stable formations and more regular conferences allowed the collaborative development of new approaches that capitalized on the lessons promulgated by Nimitz and his type commands."[143] It was also during this period more dramatic innovations began to take shape, such as the 1943 Pacific Fleet Tactical Orders and Doctrine, also known as the PAC-10, and the Combat Information Center (CIC), which were previously not prioritized prior to naval officers understanding their value in combat.[144] Naval leaders also realized the value of rotating experienced officers from the Pacific Fleet to other parts of the world, where lessons learned and recent and relevant experiences could be shared and discussed.

---

[141] Hone, 53.

[142] Hone, 17–18, 172.

[143] Hone, 227.

[144] Rich Ganske, "Need a New Idea? Try An Old One: Revisiting PAC-10 in the Air-Sea Battle Concept," Center for International Maritime Security, February 14, 2014, http://cimsec.org/need-new-idea-try-an-old-one/9975.

A lesson from World War II also illustrates how historical circumstances help to further define constraints, like a starting point and a finish line, which further shape the constraints of a complex system. The relationship between human and complex systems and how they shape constraints also partially explain why the U.S. Navy has historically practiced successful innovation during wartime, but stagnation during peacetime. During wartime, funding increases, more command discretion is delegated to subordinate field grade officers, bureaucracies are less restrictive, constraints less often enforced, and experts are more able to bear viable solutions. During peacetime, decisions become more centralized, funding is reduced, leaders compete for current and future resources, and innovation declines.[145] A similar phenomenon occurs when the United States is engaged in smaller conflicts, where the United States has simply been too dominant and too slow to learn and adapt to these regional opponents.

While funding and resources have always been a challenge, the Navy of the early twentieth century was able to maximize its learning resources, specifically from its leadership.

> In the years before World War I, the Navy fostered a learning environment; during the interwar period, that environment was maintained, creating fertile ground for new ideas and dissenting opinions. Certain officers were particularly effective in this milieu; one was Raymond A. Spruance. When he taught tactics at the Naval War College, between 1935 and 1937, his "primary contribution was to set an atmosphere in which both students and instructors were free to express their opinions, to innovate, and to experiment." Chester W. Nimitz was another. The officers who served with Nimitz later remembered him as an effective and disciplined leader who helped foster collaborative decision making.[146]

The pattern that emerges is that while funding and resources are often reduced during peacetime, learning institutions have the opportunity to maximize their potential by dramatically examining wartime strategy, tactics, technology, and policy. The advantage the early twentieth century Navy had was that it was relatively small during the interwar period. The Navy's then-small group of officers had what Senge would call a mental

[145] Hone, 27, 135.

[146] Hone, 329.

model, for them it was "a shared mental frame that operated as a set of enabling constraints. It was based on common approaches, like reliance on individual initiative, the conference method, and the estimate of the situation."[147] This model was effectively broken shortly after the war began, as the sudden influx of reserve officers brought individuals with different mindsets. Maintaining preexisting mental models and shared visions was increasingly difficult due to the demand to develop warfighting officers quickly.

While Hone's work emphasizes the early twentieth century, failure to adapt and learn from mistakes remains a twenty-first century problem. In his 2017 *Strategic Readiness Review*, Secretary of the Navy Richard Spencer wrote the following while citing Senge's work:

> A learning organization is an enterprise that encourages, and ultimately embraces, learning through systems thinking, personal mastery, mental models, shared vision, and team learning. Faced with a dynamic environment, a learning culture is critical to ensuring adaptability of the organization. A culture that makes people eager to understand risk enables early identification of systemic risks and behaviors before problems occur. It is a culture that embraces a willingness to investigate, analyze, assess, and learn from mistakes.[148]

The *Strategic Review* determined that over the past thirty years, naval readiness suffered not because of a single policy or leadership decision, but is more a product of:

> "the cumulative effects of well-meaning decisions designed to achieve short-term operational effectiveness and efficiencies have often produced unintended negative consequences which, in turn, degraded necessary long-term operational capability. Simultaneously, Navy leaders accumulated greater and greater risk in order to accomplish the missions at hand, which unintentionally altered the Navy's culture and, at levels above the Navy, distorted perceptions of the readiness of the fleet."[149]

The report concluded that "training initiatives and time to conduct training were traded away to meet pressing short-term operational needs, which further contributed to

[147] Hone, 304–305.

[148] United States Department of the Navy, *Strategic Readiness Review* (Washington, DC: Department of the Navy, 2017), 74, https://nps.primo.exlibrisgroup.com.

[149] United States Department of the Navy, 2. *Strategic Readiness Review 2017*

the overall readiness decline and increased stress on the crews."[150] The report also recommended four broad strategic recommendations, one of which was:

> Become a True Learning Organization. Navy history is replete with reports and investigations that contain like findings regarding past collisions, groundings, and other operational incidents. The repeated recommendations and calls for change belie the belief that the Navy always learns from its mistakes. Navy leadership at all levels must foster a culture of learning and create the structures and processes that fully embrace this commitment.[151]

More evident than the actual report is the stark reality that other nations, specifically China, have made better use of their time to learn and innovate than the United States in certain regions. Thirty years ago, the Soviet Union collapsed, which left the United States as the world's only remaining superpower. Some immediately pointed to China as a nation with rising potential, but unfortunately our Navy, along with the DOD, seem to have been caught unprepared for the global presence that China has recently asserted. Chinese buildup in the South China Sea has made steady progress since the early 1990s, erecting islands through the use of land reclamation vessels and the construction of several military installations within the past ten years.[152] These recently constructed islands and facilities also reside in a region where a large percentage of the world's maritime trade transits through, giving them a premier strategic location both militarily and economically. These long-developed and carefully planned installations provide the Chinese government and military with unquestionable geographic and tactical advantages over the United States and its allies.

Similarly, Russia has reasserted itself in the Arctic, bringing with it a nuclear icebreaking capability to operate in a region the United States cannot match.[153] The United States has struggled to learn and keep pace with these fast-rising rivals.

---

[150] United States Department of the Navy, 2.

[151] United States Department of the Navy, 5.

[152] Council on Foreign Relations, "Territorial Disputes in the South China Sea | Global Conflict Tracker," Council on Foreign Relations, January 20, 2021, https://www.cfr.org/global-conflict-tracker/conflict/territorial-disputes-south-china-sea.

[153] Matthew Melino and Heather A. Conley, "The Ice Curtain: Russia's Arctic Military Presence," Center For Strategic and International Studies, January 20, 2021, https://www.csis.org/features/ice-curtain-russias-arctic-military-presence.

Domestically, there is plenty of evidence to suggest that the Navy's more recent attempts to become a learning organization have been met with tough realities in several warfare communities and programs. In a 2018 appearance before the U.S. House Armed Services Committee, Chairman of the Subcommittee on Tactical Air and Land Forces, Congressman Michael R. Turner said that he was deeply concerned by the recent increase in aviation mishaps.[154] According to a December 1, 2020, report by the National Commission on Military Aviation Safety, 224 lives, 186 aircraft and $11.6 billion have been lost due to aviation mishaps between fiscal years 2013-2020. The summaries of both reports show that both Class A and Class B mishaps have remained largely the same over a ten-year period:

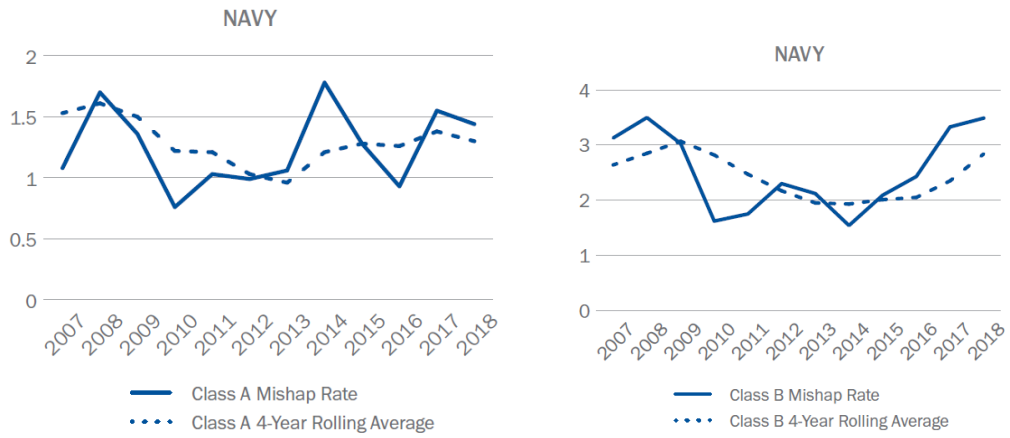


Figure 6. Class A and B Mishap Rates.[155]

Perhaps more surprising, was that the number of Class C mishaps had actually increased over the same period:

[154] Michael R Turner et al., *House Armed Services Committee, Subcommittee on Tactical Air and Land Forces*, House of Representatives, 108th Congress (2004), June 2018, 116.

[155] National Commission on Military Aviation Safety, "National Commission on Military Aviation Safety," Military Aviation Safety, December 3, 2020, https://www.militaryaviationsafety.gov/.

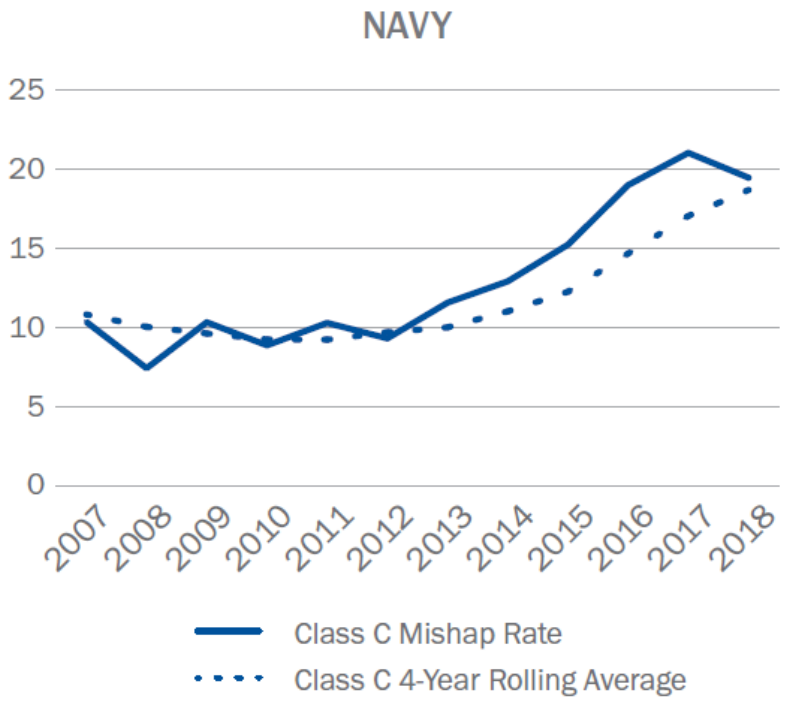


Figure 7. Class C Mishap Rates.[156]

Figure 2-6:
Class C Aggregate Mishap Estimated Derived Costs (in Millions) by Service for Fiscal Years 2007–2018

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2007-2012	2013-2018
Army	$6.18	$7.57	$6.45	$6.97	$12.91	$11.56	$6.10	$8.87	$9.61	$7.64	$8.52	$7.99	$51.65	$48.73
Air Force	$38.77	$37.49	$46.98	$70.66	$68.52	$68.92	$72.69	$70.20	$80.79	$78.09	$86.24	$72.42	$331.34	$460.43
Navy	$7.74	$5.65	$7.75	$14.80	$12.96	$14.20	$16.42	$17.47	$18.91	$22.75	$26.15	$19.89	$63.10	$121.60
Marine Corps	$1.71	$3.87	$2.83	$8.06	$5.37	$4.72	$6.13	$7.40	$7.04	$7.99	$9.47	$8.29	$26.57	$46.32
All DoD	$54.40	$54.57	$64.01	$100.50	$99.77	$99.40	$101.34	$103.95	$116.35	$116.47	$130.38	$108.60	$472.65	$677.08

Source: FR2 Database
Note: The gray boxes emphasize data entirely from the Commission's chartered study period, fiscal years 2013–2018.

Figure 8. Class C Aggregate Mishap Estimated Derived Costs (in Millions) by Service for Fiscal Years 2007-2018.[157]

[156] National Commission on Military Aviation Safety, 11.

[157] National Commission on Military Aviation Safety, 8.

There are several explanations as to why aviation mishap rates have remained largely unchanged for several years. Aging aircraft, the inability to procure new or refurbish existing airframes, and the lack of consistent and predictable funding have all contributed to the lack of improvement.[158] Modern aircraft also cost more than their predecessors, incidents are more expensive, which means more of these incidents meet the threshold to be categorized as mishaps that would not have been categorized as such in previous generation aircraft.

> We have determined from the Naval Safety Center and the Center for Naval Analyses, that damage sustained during maintenance is the leading cause of these mishaps, with the analysis pointing towards maintainers that are less experienced. The reduced experience is being addressed by doubling the length of orders for shore-based apprentice maintainers from two to four years, enabling them to gain additional experience and qualifications.[159]

Recent reports from the United States Government Accountability Office (GAO) also highlight some additional challenges. Navy shipyard maintenance has continued to decline for several different reasons. Ships have been delivered with defects due to gaps in the Navy's delivery policy, along with the often-used option to defer maintenance and extend deployments due to operational requirements. Ship's low crew levels, performance, conditions of facilities and equipment, and failure to modernize have all contributed to the Navy's inability to maintain these ships once they have been received.[160]

Additional GAO reports have found similar issues in acquisition. The Navy has struggled to meet deadlines, highlighting that "aircraft mission capable rates generally did not meet goals and the cost of sustaining selected weapons systems varied widely."[161] The consensus across several platforms is that procurement is taking longer, and little

---

[158] National Commission on Military Aviation Safety, 41.

[159] Megan Eckstein, "Less Experienced Maintainers Contribute to Rise in Naval Aviation Mishaps," USNI News, June 22, 2018, https://news.usni.org/2018/06/22/less-experienced-maintainers-contribute-rise-naval-aviation-mishaps.

[160] United States Government Accountability Office. *Navy Maintenance: Navy Report Did Not Fully Address Causes of Delays or Results-Oriented Elements*, GAO-21-66 (Washington, DC: Government Accountability Office, 2020), https://www.gao.gov/assets/720/710414.pdf.

[161] *Weapon System Sustainment: Aircraft Mission Capable Rates Generally Did Not Meet Goals and Cost of Sustaining Selected Weapon Systems Varied Widely*, GAO-21-101SP (Washington, DC: Government Accountability Office, 2020), https://www.gao.gov/assets/720/710794.pdf.

improvement has been made in the acquisition process, where deliveries are routinely behind schedule, and over budget.

The most glaring example that the Navy has struggled to learn was during the summer of 2017, in which the *USS Fitzgerald* and *USS John S. McCain* both collided with commercial vessels in what were preventable incidents. Seventeen sailors lost their lives. During a 2019 appearance before the U.S. House Armed Services Committee, Navy leaders were questioned by Congresswoman Elaine Luria, an ex-Navy Commander. During her opening remarks, she stated that "we continue to be incapable of properly manning, training and equipping our surface forces…for nearly two decades, we prioritized efficiency over effectiveness."[162] Naval leaders testified that they were aware of most of the issues in the Navy's 7th Fleet where the collisions occurred, but were often forced to make difficult decisions due to the demand for ships and an increase in operational mission requirements.

Over a period of ten years, the Navy has been unable to reduce ship collisions and aircraft mishaps. Acquisitions and maintenance are only taking longer with each successive year. These are the manifestations of *not learning*. There are several factors, inconsistent funding, policy, strategy, all point to valid reasons why the Navy has struggled, but they also show an inability to adapt to a changing environment.

The point of these examples is not to place blame, but to merely point out that despite some encouraging progress the Navy has made regarding organizational learning, our Navy has more work to do in becoming a better learning organization.

Becoming a learning organization is clearly a top priority for several of the Navy's top leaders. In 2016, CNO Admiral Richardson discussed the importance of high-velocity learning while visiting the Naval Postgraduate School (NPS). Admiral Richardson emphasized his vision of a Navy that learns from the bottom-up, and building a learning culture "characterized by positive attitudes and the desire to constantly seek self-

[162] H.R., "Naval Surface Forces Readiness: Are Navy Reforms Adequate? Joint Hearing before the Subcommittee on Readiness Meeting Jointly with Subcommittee on Seapower and Projection Forces of the House Committee of Armed Services," *Naval Surface Forces Readiness: Are Navy Reforms Adequate? Joint Hearing before the Subcommittee on Readiness Meeting Jointly with Subcommittee on Seapower and Projection Forces of the House Committee of Armed Services*, House of Representatives, 116th Congress (2016), n.d., https://www.govinfo.gov/content/pkg/CHRG-116hhrg35338/pdf/CHRG-116hhrg35338.pdf.

improvement…recognizing the need to take advantage of the various talents and perspectives provided by the newest members of an organization."[163] The Navy has also taken recent steps to modernize its institutional training and education, adding programs such as Sailor 2025 which includes Ready Relevant Learning (RRL),[164] and hosted events such as the Career Development Symposium (CDS) at various military regions and installations.[165] The first line in the 2018 Education for Seapower Report states that "continuous learning—and sharing hard-won knowledge—represents a combat-proven key to victory for our naval services."[166] Continuous learning and organizational learning are consistently referenced throughout the document. The Navy has made progress in several of its learning *processes*, but work remains to improve the learning *structure* that is needed to support and sustain the types of learning the Navy needs to continue adapting to a changing global environment.

2. Sister Services and Maneuver Warfare

The Navy is not the only branch of the United States military to attempt becoming more like a learning organization. The practice of organizational learning was imbedded in the maneuver warfare movements of both the United States Marine Corps and Army. Many Marines focus on maneuver warfare as an approach to how tactics can be applied in combat, but the battlefield application is only a small part of the greater strategy. The history of maneuver warfare is one of bottom-up military innovation that teaches leaders that there is always more than one solution to a problem, and leaders who emphasize thinking and learning will often present the best solutions.[167]

---

[163] Kenneth A. Stewart, "Chief of Naval Operations Shares His Vision for High Velocity Learning," *CHIPS Magazine*, Summer 2016, https://www.doncio.navy.mil/CHIPS/ArticleDetails.aspx?ID=8029.

[164] "Sailor 2025 Pushing Ready Relevant Learning," *Modern Military Training* (blog), September 30, 2019, http://modernmilitarytraining.com/training-effectiveness/sailor-2025-pushing-ready-relevant-learning/.

[165] Department of the Navy, "Career Development Symposium," Navy.mil, January 25, 2019, https://www.public.navy.mil/bupers-npc/career/talentmanagement/Pages/CDS.aspx.

[166] Mullen et al., "Education for Seapower."

[167] Robert Coram, *Boyd: The Fighter Pilot Who Changed the Art of War* (New York: Back Bay Books, 2004), 376–82.

Under the leadership of General Al Gray, early maneuverists argued how a strategy of maneuver warfare was historically proven to be far more effective than attrition warfare, noting how smaller militaries were often forced to think harder, fight smarter, and adapt to changing disadvantages.[168] Maneuver warfare allowed subordinate commanders the freedom to make real-time adjustments to changing conditions, while staying within the intent of the higher headquarters' operational objectives. It began as "a movement focused on helping Marines learn how to think better about complex issues (not what to think) and reinforcing the importance of learning as a lifetime activity."[169] It also led to the drafting of new ideas, and formalizing them into a manual in what would become *Fleet Marine Force Manual 1* (FMFM 1) *Warfighting*, the first of many organizational documents the Marine Corps would produce. It also led to the establishment of the Marine Corps University (MCU) in 1989 at Quantico, Virginia.[170]

General Gray's tenure as Commandant marked the beginning of an organizational culture shift for the Marine Corps. While warfighting doctrine was still emphasized, Marines were also encouraged to remain flexible and adaptable to changing scenarios. MCU's Amphibious Warfare School (AWS) has since evolved into the Expeditionary Warfare School (EWS), where Marines are taught to embrace creativity and share knowledge and experiences so that they can improve and strengthen doctrine vice being bound to it without flexibility.

The Marine Corps' level of commitment to education and collaboration has helped to construct an organizational culture that most resembles a learning organization. Marine Corps leaders have voiced their commitment to a "culture of learning", seeing it as essential

---

[168] Ian T. Brown, *A New Conception of War: John Boyd, the U.S. Marines, and Maneuver Warfare*, (Quantico, VA: Marine Corps University Press, 2018), xxxiii, see also Eliot A. Cohen, "Change and Transformation in Military Affairs," *Journal of Strategic Studies* 27, no. 3 (September 2004): 401.

[169] Mie Augier and Sean F. X. Barrett, "Organizational Perspectives on the Maneuver Warfare Movement in the United States Marine Corps: Insights from the Work of James G. March," *Industrial and Corporate Change* 29, no. 1 (February 2020): 154, https://doi.org/10.1093/icc/dtz063.

[170] Coram, *Boyd*, 390.

to meet operational requirements in the twenty-first century.[171] Maneuver warfare has also enjoyed a bit of a renaissance, as Major General William F. Mullen III, while in command of Marine Corps Training and Education Command reinforced the benefits of maneuver warfare and how focusing on personal and professional development, building mature and intelligent leaders, developing unit cohesion and competence, are far more important than merely focusing on material items and new technologies.[172] General Mullen also ensured the release of Marine Corps Doctrine Publication 7 (MCDP 7) on Learning. "MCDP 7 — the first doctrinal publication the service has issued since 2001 — is designed to motivate Marines to personally assess where they can improve and understand the 'why' behind the significance of learning."[173]

Like the Marine Corps, the Army and a few of its reformers found some encouraging success during their attempts to transform their organizational learning and enterprise structure beginning in the 1980s. Army reformers had seen firsthand how war was becoming more lethal and hazardous, and how the United States was relying too heavily on innovation and technological advances as a tactical advantage. This led to the establishment of the Army's School of Advanced Military Studies (AMS) at Fort Leavenworth, Kansas. AMS "developed a curriculum that blended studies in theory, doctrine, and history to prepare students for operational warfare. In addition to using classical texts in military history, the school also incorporated studies of Soviet military theory to broaden the conception of operational art and facilitate its transmission to the operating forces."[174]

---

[171] Diana Stancy Correll, "A Culture of Learning: Why the Marine Corps Is Promoting Education, Training in Its New Doctrine," Marine Corps Times, May 20, 2020, https://www.marinecorpstimes.com/news/your-marine-corps/2020/05/19/a-culture-of-learning-why-the-marine-corps-is-promoting-education-training-in-its-new-doctrine/.

[172] William F. Mullen III, "Reinvigorating Maneuver Warfare," *Marine Corps Gazette*, July 20, 2020, https://mca-marines.org/wp-content/uploads/Reinvigorating-Maneuver-Warfare.pdf.

[173] Correll, "A Culture of Learning."

[174] Matthew J. Schultz, "The Operational Warfare Revolution: How Operational Art Can Prepare the Marine Corps for an Era of Great Power Competition," *Expeditions with MCUP*, March 5, 2020, https://doi.org/10.36304/ExpwMCUP.2020.02.

In a 1991 appearance before the U.S. House Armed Services Committee, former Senator Gary Hart testified that the Army's unprecedented success in the Gulf War were in part due to the achievements made by graduates of the Army's School of AMS:

> Mr. Chairman, some conclusions are obvious. We won. We won with very few casualties. And we won largely through maneuver warfare, a central theme as Colonel Boyd has said within the military reform movement. Based on this foundation, several lessons become apparent. First, the principles of military reform where they were adopted, have been adopted, have proved sound. Drawing on military history, military reformers have argued for two decades that, for winning in combat, as Colonel Boyd has said, people are most important, ideas are second, and weapons are third… The importance of good military education is the third lesson about people. A major force behind the development of our excellent maneuver warfare campaign plan, were the graduates of the Army's School of Advanced Military Studies at Ft. Leavenworth. This school differs from virtually all of our other military institutions, schools, and colleges, in that it focuses on developing military judgment largely through study of military history and exercises in making military decisions. By contrast, the focus still at most of our schools remains too much on rote learning of processes, procedures, and formats.[175]

The strengths of maneuver warfare in both services are characterized by the value they place on common notions, such as decentralization, creativity, adaptability, and innovation. A culture of maneuver warfare is similar to that of a learning organization, because both understand the value of a strong learning infrastructure and the importance of processes such as after-action reports, hot groups, and feedback loops, all of which help to capture lessons learned and share them with as wide an audience as possible. These types of processes also help to ensure that learning is maximized; not localized only to the individuals that were present at the time. Maneuver warfare focuses on an opponent's center of gravity (COG), emphasizing mission accomplishment over blindly following specific processes, as "letting processes become a substitute for good judgment can lead to well-executed, terrible decisions - or worse, to stagnation and frustration."[176]

---

[175] "U.S. Military Reform After Operation Desert Storm: Testimony before the U.S. House Committee on Armed Services," 102nd Cong. (1991) (statement of Gary Hart, former Senator of Colorado), https://www.c-span.org/video/?17753-1/us-military-reform-oper-desert-storm.

[176] Nancy Mohr and Dichter, "Building a Learning Organization," *The Phi Delta Kappan* 82, no. 10 (June 2001): 746, https://www.jstor.org/stable/20440029.

In his book, *Hope is Not a Method* (1997), co-authored with Michael Harper, General (Ret.) Gordon Sullivan discussed the Army's rapid transformation during the 1990s, claiming that "the army had transformed itself into a learning organization, maybe the foremost learning organization in the world."[177] Army leadership was familiar with Senge's work and had a working understanding of the building blocks and disciplines that Senge had developed. The Army was also becoming more like a learning organization through the utilization of the maneuver warfare concept used toward warfighting.

General Schoomaker, during his 2004 testimony to the U.S. House Armed Services Committee, testified that the Army has primarily held a doctrine-based focus for the preceding 50 years, but under his watch as Chief of Staff, the Army was trying to transform itself. Schoomaker stated that the United States needs an Army that knows how to think, use instincts, and experience, and develop a more flexible doctrine from which to operate.[178]

> The strength of a football team is not the play that is called in the huddle and how well everybody knows the playbook. The strength of the team is when you get to the line of scrimmage and the ball gets snapped, what happens when everything changes? That is the difference, and that is the kind of Army we need. We have to have a common basic starting point, but, boy, once the ball has snapped, you know, we have to have people that understand the intent, understand what the end state is supposed to be and understand how they can contribute.[179]

Schoomaker also emphasized that the Army that would be needed in the future is a force that has both organizational and intellectual agility, that can anticipate and create solutions while progressing forward.

---

[177] Gordon R. Sullivan and Michael V. Harper, *Hope Is Not a Method: What Business Leaders Can Learn from America's Army* (New York: Broadway Books, 2010), ix.

[178] *Army Transformation*: Testimony before the Committee on Armed Services, 108th Cong. 15 (2004) (statement by General Schoomaker).

[179] James G. Alden, Amber L. Hopeman, and Jodi A. Neff, "Transforming Change in the Military: A Systems Approach" (master's thesis, Naval Postgraduate School, 2007), 23, http://hdl.handle.net/10945/3491. See also Peter Schoomaker, U.S. Congress, House, Committee of Armed Services, *Hearings on Army Transformation*, 108th Cong., 2nd sess., July 15 and 21, 2004, 61.

More recently in 2017, Major General Kern, Provost, Army University, released its inaugural *Journal of Military Learning* (JML), further emphasizing a career-long learning model that meets the needs of all soldiers and DOD civilians:

> Warfare is and will remain the most difficult of human endeavors, and in the multifaceted world of today, developing soldiers and civilians with the technical, professional, and leadership skills to "win in a complex world" is more important than ever. The Army has never stood still when it comes to improving training and education, but recently Army leadership has recognized that the rate of change in the operating environment necessitates a true transformation in the way we approach learning in the Army to ensure readiness of our forces now and far into the future.[180]

In the same journal issue, in an article titled *The Changing Face of Military Learning*, the authors also identified a need for transformation, arguing that "military personnel require an expanded set of competencies, higher levels of nuanced skills such as critical thinking and emotional intelligence, and more efficient and agile pathways to expertise, and that achieving these outcomes depends, at least in part, on revising the learning military enterprise."[181] To achieve this, one of the recommendations presented by the authors is to "foster a learning culture at the organizational level. By definition, 'learning organizations' are those companies or agencies that continuously transform themselves to maintain relevance within changing conditions, respond nimbly to the newest threats, and capitalize upon emerging opportunities."[182]

Sean Hannah and Paul Lester at the Department of Behavioral Sciences, United States Military Academy, West Point, made several observations in their 2009 report, *A Multilevel Approach to Building and Leading Learning Organizations*.[183] Hannah and Lester highlight how F.M. Andrews concluded that "creative potential was only related to

---

[180] Maj. Gen. John S. Kern, U.S. Army, "What Is Army University Supposed to Do and How Is It Going So Far?," Army University Press, https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning.

[181] Sae Schatz et al., "The Changing Face of Military Learning," *Army University Press*, April 2017, 78, https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning/Journal-of-Military-Learning-Archives/April-2017-Edition/The-Changing-Face-of-Military-Learning/.

[182] Schatz et al., 86.

[183] Sean T. Hannah and Paul B. Lester, "A Multilevel Approach to Building and Leading Learning Organizations," *The Leadership Quarterly*, Leadership and Organizational Learning, 20, no. 1 (February 2009): 34–48, https://doi.org/10.1016/j.leaqua.2008.11.003.

innovation when workers attributed their environment to be safe and encouraging."[184] Additional research by Nemanich and Vera "found that cultures that promote learning and offer psychological safety and openness to diverse opinions promote both exploration of new knowledge and refinement of existing knowledge."[185]

Spain, Mohundro and Banks also highlighted the importance of developing intellectual human capital (IHC) within the Army, which is essential for the United States to achieve the intellectual overmatch it desires over its rivals.

> Intellectual human capital becomes more central to winning as security environments become increasingly difficult, especially as officers rise in rank and the complexity of their tasks increase. As technology and industry dominated the wars of the 20th century, intellectual human capital will likely decide many of the world's future security issues. Army officers are America's "boots on the ground" senior leaders in the middle of rapidly changing environments. Army officers must have the intellectual agility not only to survive, but to thrive in such environments.[186]

Recruiting and retaining the Soldiers with the highest levels of cognitive ability can help to generate more IHC. "Cognitive ability enables intellectual agility (i.e., the ability to understand and apply many conceptual things simultaneously) and intellectual adaptability (i.e., the ability to stay ahead of the rate of situational and environmental changes)."[187]

---

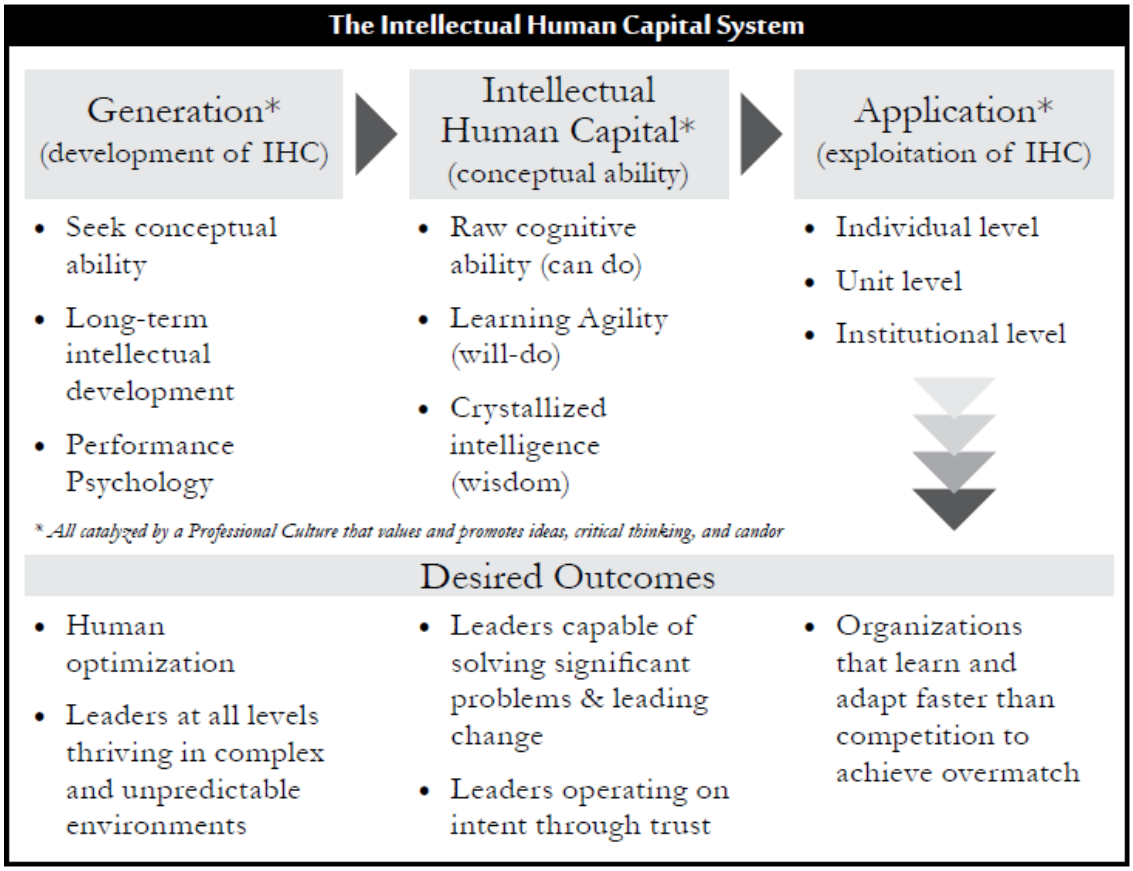
[184] F. M. Andrews, "Creative Ability, the Laboratory Environment, and Scientific Performance," *IEEE Transactions on Engineering Management* EM-14, no. 2 (June 1967): 76–83, https://doi.org/10.1109/TEM.1967.6448326.

[185] Louise A. Nemanich and Dusya Vera, "Transformational Leadership and Ambidexterity in the Context of an Acquisition," *The Leadership Quarterly*, Leadership and Organizational Learning, 20, no. 1 (February 1, 2009): 19–33, https://doi.org/10.1016/j.leaqua.2008.11.002.

[186] Everett S. P. Spain, J. D. Mohundro, and Bernard B. Banks, "Intellectual Capital: A Case for Cultural Change," *Parameters* 45, no. 2 (Summer 2015): 78, http://libproxy.nps.edu/login?url=https://www-proquest-com.libproxy.nps.edu/scholarly-journals/intellectual-capital-case-cultural-change/docview/1711519126/se-2?accountid=12702.

[187] Spain, Mohundro, and Banks, 80.

Table 6. Defining Intellectual Human Capital[188]



3. Joint Forces and International Examples

Just as a learning organization supports a culture of bottom-up learning and solutions, some of the strongest learning organization examples are the ones that start small, and gradually expand. Special Operations Forces (SOF) often operate independently, through a decentralized command structure that requires its company-level leaders to solve problems at the operational level, often without immediate support of its superiors. Schultz conducted a case study of Task Force (TF) 714 in Iraq, noting how the unit was able to adapt and transform, later defeating the al-Qaeda in Iraq (AQI) forces between 2006-2009. He credits TF 714's success to forging alliances with military and civilian intelligence agencies, helping to create a joint interagency task force (JIATF),

[188] Spain, Mohundro, and Banks, 79.

which through interdependence and cooperation would establish "problem-solving methods capable of deciphering AQI's networks."[189] TF 714's success was largely due to shedding its top-down style of command, understanding that the existing hierarchy in place was too slow to adapt to AQI's decentralized networks.

> Individuals and teams closest to the fight were best positioned to decide and act decisively. The velocity and volume of decisions needing to be made exceeded the ability of even the most gifted leader. Empowerment of those at the operational levels was indispensable. Agency and empowerment were critical enablers…The action arm of the JIATF, the operational units, was coordinated with a robust intelligence capability drawn from the Central Intelligence Agency (CIA), National Security Agency (NSA), Federal Bureau of Investigation (FBI), Defense Intelligence Agency (DIA), National Geospatial-Intelligence Agency (NGA), and other agencies—intelligence led the way. To learn and adapt, TF 714 amassed information and knowledge about a new problem set—a complex, clandestine, and networked enemy empowered by information age technology. The task force achieved intelligence dominance over AQI.
>
> To foster cross-organization ties, cross-fertilization of new ideas, and dissemination of new knowledge to respond to AQI's complex challenges, the JIATF established an operating environment based on cooperation, trust, and interdependence among its interagency members. Several innovative procedures and mechanisms were adopted to facilitate this environment. Each enhanced the capacity of the JIATF to act decisively, with speed and precision, to maneuver inside AQI's networks fast enough to seriously dismantle those networks from the inside out.[190]

TF 714 developed its ability to recognize that decisions made at the top slowed the execution and actions taken by subordinate leaders, often reducing their effectiveness, and limiting their ability to respond to changing environments in real-time. "TF 714's transformation from a highly compartmented organization augmented by a JIATF had an extraordinary impact on its operational tempo. In August 2004, the task force executed 18 raids. Two years later, in August 2006, they were up to 300 raids a month."[191] "By adopting the characteristics of a learning organization and transforming itself, TF 714 was able to

---

[189] Richard H. Shultz, *Military Innovation in War: It Takes a Learning Organization, a Case Study of Task Force 714 in Iraq*, JSOU Report 16 (The JSOU Press, 2016), 2.

[190] Shultz, 3.

[191] Stanley McChrystal, *My Share of the Task: A Memoir*, first edition (Portfolio, 2014), 92, see also Schultz, 4.

sustain an industrial-strength counterterrorism operational tempo of 300 raids a month between 2006 and 2009."[192] SOF units tend to have a better understanding of how decentralized decision making, adaptability, and knowledge sharing lead to the most effective solutions when faced with constantly changing environments, and some of these best practices can serve as models for other small units and organizations to build from.

International and joint forces also tend to better understand the concepts of a learning organization and why they are beneficial, because these units often rely on knowledge sharing and communication with each other to adapt to their own changing environments. In 2000, the 42nd Annual Conference of the International Military Testing Association met in Edinburgh, Scotland, from November 7-9. One of the papers discussed titled, *Creating a Learning Organization (2000)*, was written by Annette G. Baisden of the United States Naval Education and Training Professional Development and Technology Center. She concluded that during a time of unprecedented change, organizations will need to continually adapt by reinventing themselves, establishing a learning culture built on trust where individuals and teams are encouraged to experiment and take risks. She also stressed that organizations need to find ways to remove unnecessary rules and control, advocating for a flatter organizational structure where possible.[193]

In 2005, NATO formed an Educators Development Working Group (ED WG), with the goal of transforming legacy teaching methods of former Soviet authoritarian institutions into more democratic systems so they could train leaders better able to handle the twenty-first century. The ED WG chose to ground its work in the then-current understandings of adult-learners, with the requirement to develop life-long learners in rapidly changing societies during a time of information overload, so that they can construct knowledge & wisdom moving forward (focused on two main points of constructivism and

[192] Shultz, *Military Innovation in War*, 65.

[193] Annette G. Baisden, "Warfighter Readiness Research Division 2000 IMTA Conference Papers," *Warfighter Readiness Research Division*, Creating a Learning Organization, November 1, 2000, 44–48, https://www.researchgate.net/publication/235096803_Warfighter_Readiness_Research_Division_2000_IMTA_Conference_Papers.

connectivism).[194] The team concluded that one of the critical principles for sustainable learning that can successfully challenge existing legacy learning methods, was the promotion of life-long learning in the leaders of these nations, encouraging multinational cooperation and promoting the exchange of ideas with partnering countries.

D. THINKING EFFECTIVELY FIRST

Navy Captain (Ret.) Wayne Hughes, former Dean Emeritus of NPS, renowned professor and giant among naval strategists, often stressed that the ultimate objective of naval tactical warfare is to "fire effectively first."[195] Augier and Barrett cite Hughes emphasis to "develop leaders who are intellectually adaptive and capable of identifying strategic trends, understanding and solving complex problems in an interdisciplinary manner, and thinking effectively first."[196]

> Thinking effectively first requires cultivating the right mental habits, first by prioritizing problem framing (and reframing) while actively seeking alternative and opposing views to prove our own hypothesis incorrect. Next, to think critically, constructively, strategically, and about the process of thinking itself to improve our intellectual adaptability and be learners that are always eager to extend our knowledge, whether through reading, experimentation, debates, or otherwise. Finally, to encourage active open-mindedness and intuition, and inspire imagination and curiosity to inform judgment and integrate analytical, intuitive, and synthesizing ways of understanding Navy and warfighter problems.[197]

---

[194] Kathaleen Reid-Martinez, "Overcoming the Challenge of Legacy Learning Methods," *Connections : The Quarterly Journal* 11, no. 4 (Fall 2012): 45, http://search.proquest.com/docview/1412206935/abstract/F72CE7A6B1A54C36PQ/1.

[195] Taylor Vencil, "In Memoriam: Legendary Strategist and Fleet Tactics Author Wayne P. Hughes," Naval Postgraduate School, December 11, 2019, https://nps.edu/-/in-memorium-legendary-strategist-and-fleet-tactics-author-wayne-p-hughes.

[196] Mie Augier and Sean F. X. Barrett, "Thinking Effectively First," Center for International Maritime Security, June 24, 2020, http://cimsec.org/thinking-effectively-first/44322.

[197] Augier and Barrett.

The learning culture that Hughes, Augier, and Barrett highlight is precisely what military leaders have been calling for, with a strong emphasis on continuous learning and educational infrastructure that prepares today's leaders for tomorrow's challenges.[198]

1. Long Range Planning and Small Course Corrections

> Changes made in the 1920s to requirements for command positions were intended simply to aid the navy's fledgling aviation community, but as a result, by the late 1930s the navy had become the most aviation-minded in the world.[199]

The Joint Chiefs of Staff released their Strategic Vision and Guidance for PME and Guidance in May of 2020, stating that the "profound and rapidly changing character of war and conflict in the twenty-first century compels us to transform our leader development to maintain our competitive advantage and successfully prepare for the emerging ways of war our nation could face…and to achieve intellectual overmatch against adversaries, we must produce the most professionally competent, strategic-minded, and critically thinking officers possible."[200] Garvin said that "learning organizations are not built overnight. Most successful examples are the products of carefully cultivated attitudes, commitments, and management processes that have accrued slowly and steadily over time."[201] The infrastructure that supports military learning must be built with this same understanding. Like the seed that becomes a tree, sometimes decades later, the decisions the Navy makes today have the potential to bear fruit in the future, and educational institutions are the foundation from which our naval learning organization can be built.

The 2018 Education for Seapower (E4S) report reinforced the Navy's desire to become more like a learning organization and its need to reorient its education system. From the E4S, the Navy developed the following strategic vision:

---

[198] United States Joint Chiefs of Staff, *Developing Today's Joint Officers for Tomorrow's Way of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management.* (Washington, DC: Joint Chiefs of Staff, 2020), 1.

[199] Williamson Murray and Alan R. Millet, *Military Innovation in the Interwar Period* (Cambridge University Press, 1996), 383–405.

[200] United States Joint Chiefs of Staff, *Developing Today's Joint Officers for Tomorrow's Way of War*, 6.

[201] Garvin, "Building a Learning Organization," 28.

> The Naval Education Enterprise must produce leaders of character, integrity, and intelligence steeped not only in the art of war, the profession of arms, and the history and traditions of the naval service, but also in a broader understanding of the technical and strategic complexities of the Cognitive Age, vital to assuring success in war, peace, and grey zone conflict; officer and enlisted leaders of every rank who think critically, communicate clearly, and are imbued with a bias for decisive and ethical action.[202]

The E4S also stressed that "lifelong education in the naval profession becomes both a personal and an institutional responsibility, for achievement in learning is vital for the strategic viability and long-term lethality of our fighting forces and the nation."[203]

Despite the recognized need to resource its educational institutions, long-range planning is difficult for the United States Department of Defense, as it does not have the benefit of guaranteed long-term funding needed to commit to some of these more ambitious educational proposals. Long-term funding and commitment from legislators are often elusive and inconsistent, with each military service and its various departments competing for the same funding and resources each and every fiscal year. The governments of United States rivals, specifically China and Russia, do not have these types of challenges, as these nations have less oversight, more discretion, and can often commit to twenty- and thirty-year plans with less resistance than the United States. While the checks-and-balances of the United States budgeting process provide protection for fraud, waste, and abuse, an unintended side effect is that long-term funding is heavily scrutinized, and put before rigorous checks before any new annual appropriation is passed and approved. To this end, the Navy must focus and validate its requirements and be prepared to defend them each year through its various Resource Sponsors (RS) and Budget Submitting Offices (BSO). Despite the annual budget validation requirements, military organizations must recognize that there are still major benefits to long-range planning. The smallest course corrections made in the present can still pay huge dividends decades into the future, so long as a long-range plan is emphasized and maintained.

---

[202] Mullen et al., "Education for Seapower," 6.

[203] Mullen et al., 6.

2. The Importance of Professional Military Education and War Colleges

PME has always been considered important for today's naval leaders, but it has been given renewed attention since the release of the 2018 NDS, which called for a renewed focus for PME to be regarded as a strategic asset.

> Our PME institutions must be an agile and adaptable enterprise. Collaboration across our PME network enhances our programs, builds synergy and deeper understanding, and enables us to focus on key problems. In the process, the education enterprise can serve our joint warfighters with rigorous studies and research, concept development, and exercise design. Our PME enterprise must be dynamic. To remain relevant, we must periodically assess our programs, validate missions and focus, as well as determine gaps and where new programs are needed. At the same time, we should strive to make our PME enterprise accessible to the force that is not in residence and support self-development and unit professional development programs, recognizing that these extend the core mission. We must continue to incorporate allied and partner students within our PME system to better prepare our own officers for global operations. Strong relationships between PME institutions are also important to support allied and partner PME programs as we innovate, creating opportunities for closer ties and deeper collaboration, and for greater U.S. student participation.[204]

The NDS said that "PME has stagnated, focused more on the accomplishment of mandatory credit at the expense of lethality and ingenuity." [205] It also stated the need to "emphasize intellectual leadership and military professionalism in the art and science of warfighting, deepening our knowledge of history while embracing new technology and techniques to counter competitors."[206] The report also cited a need to properly manage talent in DOD organizations, to include a better understanding of how different departments work together to make decisions.

"Military education is valuable because it provides an intellectual architecture for battlefield success. It contributes to stable civil-military relations, a culture of reflection,

[204] United States Joint Chiefs of Staff, 8.

[205] United States Department of Defense, *National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge.* (Washington, DC: Department of Defense, 2018), 8.

[206] United States Department of Defense, *National Defense Strategy of the United States of America,* 8.

and a capacity for critical analysis."[207] In their 2020 report, the Joint Chiefs emphasized that the United States military "requires leaders at all levels who can achieve *intellectual overmatch* against adversaries."[208] The purpose behind this amended approach stems from the realization that future challenges are unlikely to be similar to the regional conflicts the United States has most recently experienced, but rather, facing rivals with equal, and perhaps even larger militaries will require the United States to think and adapt faster, while not having the luxury of having larger forces and near-endless resources to fall back on. Taking a closer look at rivals, the E4S also noted that "the path to promotion of a general officer in Russia is through the General Staff Academy in Moscow, a two-year course. Similarly, in China, examinations are vital in determining promotions, as the Chinese are adopting a very entrepreneurial approach in demanding of its future officer to be highly innovative, particularly in IT and AI skills."[209]

> It is now undeniable that the *homeland is no longer a sanctuary*. America is a target, whether from terrorists seeking to attack our citizens; malicious cyber activity against personal, commercial, or government infrastructure; or political and information subversion. New threats to commercial and military uses of space are emerging, while increasing digital connectivity of all aspects of life, business, government, and military creates significant vulnerabilities. During conflict, attacks against our critical defense, government, and economic infrastructure must be anticipated.[210]

The past two decades have seen the United States military concentrate much of its focus towards Afghanistan and Iraq, with the bulk of PME conducted during this time primarily focused on lessons learned from these two theaters. Much of this has been by design and not in vain, as one of the chief responsibilities of PME has always been to maintain relevancy to current and existing conflicts. The unintended consequence is that it has also inadvertently focused military attention and education *away* from the largest future rivals, China, and Russia. A gap exists between the lessons of the Cold War's Eastern

---

[207] Nathan W. Toronto, "Does Military Education Matter?," *E-International Relations* (blog), May 26, 2015, https://www.e-ir.info/2015/05/26/does-military-education-matter/.

[208] United States Joint Chiefs of Staff, 3.

[209] Mullen et al., "Education for Seapower," 85.

[210] United States Department of Defense, *Summary of the 2018 National Defense Strategy of the United States of America*, 3.

Europe and today's emerging global challenges, a side effect of the United States being the only superpower over a thirty-year period. Some of the previous Cold War lessons learned have been lost, or at a minimum need to be revisited, as these types of experiences and education have unfortunately atrophied over time. China has not effectively been challenged in the South China Sea, nor has the United States kept pace with Russia's modern Arctic capabilities. While this shortfall does not fall squarely on the United States military, the DOD has not given the attention to these theaters that they undoubtedly deserve, as these once-emerging threats have since, emerged.

Recognizing that a shift is necessary, the Joint Chiefs have stressed the need to adapt and innovate PME:

> Our PME enterprise must continuously assess, adapt, and innovate. We cannot afford to be complacent, nor can we afford to shortchange PME institutions and their students with barriers to effective learning or inadequate resources. Our first task is to reorient the PME enterprise to prepare joint officers to operate globally, across all domains, and lead decisively throughout the remainder of their careers. Initially we must shift our PME curricula from a predominately topic-based model to an outcomes-based approach and emphasize ingenuity, intellectual application, and military professionalism in the art and science of warfighting, while deepening knowledge of history. Staying current means that our work is not done once these initial tasks are complete. Warfare, geopolitics, technology, and instructional methods will continue to change, and our PME systems must keep pace.[211]

The Joint Chiefs also identify their respective war colleges playing a key role in the development of future flag officers, and these institutions have the potential to share experiences and improve doctrine through Joint Professional Military Education (JPME) curriculum. This serves to "infuse a joint context that reassesses current JPME framework in the context of demonstrated experience over the past thirty years to ensure we are evolving JPME requirements of the twenty-first century."[212]

The Navy is also taking small but gradual steps to establish a Naval University System (NUS). Currently, the Naval Academy provides undergraduate education, while

[211] United States Joint Chiefs of Staff, 5.

[212] United States Joint Chiefs of Staff, 5.

NPS and NWC provide post-secondary education. A common criticism of the existing system is that while "each of the components of the naval educational enterprise is performing relatively well individually—it is not sufficiently integrated or coordinated as a whole. The value proposition is that the Fleet and Marine Operating Forces depend on education to enhance our leaders' ability to think and reason strategically and critically…which requires that continuous learning be instituted across the services."[213] A refined NUS would ensure all three of these institutions remain synchronized and relevant, whereas each tends to operate somewhat independently of each other in their current structure. A NUS would also ensure that Naval Reserve Officer and Training Corps (NROTC) training conducted onboard civilian universities are also adhering to current PME requirements.

Finally, the Navy is adding the United States Naval Community College (NCC) to the new NUS, an entirely new concept, and a first for the DOD. The Navy understands that the bulk of its sailors are enlisted, and as they are the technical experts of so many essential functions. Enlisted education and development are the key elements to this new strategy:

> The need for this new community college is driven by the changing nature of warfare. In the twenty-first century, war is becoming even more technologically complex, and moving at an accelerated pace, forcing decision-making down to the NCO and petty officer level. To perform at our best and to protect our national security, we need to deploy the most technically advanced and intellectually capable enlisted force in the world. The raw material we possess—our enlisted sailors and Marines—is the best in the world. They are smart, disciplined, and focused. If we give them additional tools, through advanced community college educations, they will be even more effective.[214]

While the Navy often *leads* from the top, it cannot compete with its rivals if it only *learns* from the top. The E4S highlighted that the Navy has overall under-valued, under-resourced and under-exploited education, with most of its innovations more focused on training for specific job skills, and not the education that develops a sailor's problem-

[213] Mullen et al., "Education for Seapower," 28.

[214] John R. Kroger, "This Is the Navy's Plan for Launching Its New Community College," *Navy Times*, April 19, 2020, sec. Commentary, https://www.navytimes.com/opinion/commentary/2020/04/19/this-is-the-navys-plan-for-launching-its-new-community-college/.

solving capabilities. The NCC is a great step in the right direction, which when paired with the Navy's overall education strategy, leaders hope it will facilitate the development of "officers and enlisted leaders of every rank who think critically, communicate clearly, and are imbued with a bias for decisive and ethical action."[215] These latest education initiatives also recognize the growing need for strengthening skills amongst the naval sciences, with a stronger emphasis on data analytics, information systems and artificial analysis. As jobs and careers are becoming more sophisticated, so too must the educational infrastructure that develops the sailors to fill these increasingly demanding positions.

3. Commitment to Continuous Learning

> Learning is a constant process of discovery—a process without end.
>
> —Bruce Lee[216]

Long-range planning and continuous learning are essential for building organizations that can "fire effectively first." Recognizing that learning organizations are not built overnight, a long-term commitment is required to ensure that resources remain available for continuous learning, development, and growth. A successful NUS and PME proposals cannot fall victim to the common pitfalls of annual funding requirements. While budgets are inconsistent and future resources are never guaranteed, educational institutions and programs need to be a stable first priority.

> The U.S. military is being swept into tremendous shifts in the tides of global politics, economics, and security that will demand unprecedented innovation to navigate safely. Innovation is spawned by the synergy of disparate ideas spun into new—and often disruptive—concepts and capabilities. Diverse and continual education of our people is absolutely vital to this process. As such, it may be correctly said that the future of the sea services, and of our nation, rests squarely on the education of our workforce and those who lead it.[217]

---

[215] Mullen et al., "Education for Seapower," 78.

[216] "Bruce Lee Quote," QuoteFancy, accessed October 16, 2021, https://quotefancy.com/quote/778818/Bruce-Lee-Learning-is-definitely-not-mere-imitation-nor-is-it-the-ability-to-accumulate.

[217] Mullen et al., "Education for Seapower," 28.

The Navy appears to be taking some of the most important initial steps to cement its educational infrastructure. The E4S reinforces some of the core learning organization concepts, such as the reduction and dismantling of learning barriers, the importance of feedback loops, the removal of inefficient systems and processes, and the need to create practice fields to better understand the value of failure. Instead of simply funding institutions such as the NWC and NPS, the Navy is more cognizant of the need to ensure that the right students are attending, and that enrollment is purpose-focused and tied to the Navy's current missions. While operations and education have often been segregated and competing for resources, the Navy is coming to understand that its educational infrastructure needs to better fit and support its operational requirements. Understanding the importance of this relationship helps to establish the learning culture the Chief of Naval Operations views as essential in trying to make the Navy a learning organization.

IV. APPLICATIONS AND BARRIERS

A. MILITARY CULTURE

One of the most difficult obstacles when trying to institute change in the military, is often military culture itself. Our Navy is perhaps the service most tied to its traditions, which can create a predisposition to resist even the smallest suggestions that seek to change or improve a process, a platform, or a mission. Sailors, who they are, what they do, whether as individuals or teams, are no exception to this self-defensive posture sometimes seen in our Navy. Innovation, for all its benefits, can be seen as a threat to established doctrine and current leaders' experiences. Each new generation of sailors will have different sets of experiences than the preceding generation. This generational divide can be troublesome, as the experiences of senior leaders, especially those leaders that have had successful careers, can be stubborn to change existing practices and established doctrine. Experience is valuable, but some types of experience expire, and while history and perspective are immensely important and need to be shared, relevance and applicability also matter for a learning organization seeking to adapt and improve in constantly evolving and challenging scenarios. We must change the way we perceive and prioritize learning if we want to keep pace with our rivals, especially concerning the modernization of learning systems currently taking place in China and Russia.

As discussed in Chapter II, Rosen argued that there is little incentive to innovate amongst military officers, because the promotion structure of the military tends to reward officers that follow more traditional career paths. Senior officers tend to be more receptive to the career decisions of junior officers that mirror their own career decisions, creating a "like me" bias often found in civilian organizations. Senior officers see their previous tours and experiences as a recipe for success, a proven road map, and understanding a junior officer's alternate career path and career choices can be a difficult obstacle to overcome. Rosen also concluded that officers considered "mavericks" who challenge the status quo and advocate for improvement, often suffer professionally for their efforts, with many failing to promote to the senior officer ranks. For the few innovative junior officers that do survive and promote, it can take 20 years or longer until they are in senior positions of

influence, meaning it took an entire generation for their innovation to reach the top, after which they have precious few years remaining before retirement. [218]

But while military culture can be perceived as a hindrance to innovation and evolution, it can also be tapped to facilitate change, making it a strong asset. "Military culture may be the most important factor not only in military effectiveness, but also in the processes involved in military innovation, which is essential to preparing military organizations for the next war."[219]

> The difficulty in addressing military culture in a scholarly fashion derives not only from the complexity of the subject, but also the fact that its influence is almost always the result of long-term factors rarely measurable and often obscure even to historians. What is more, military culture obviously changes over time in response to changes in a society's culture, the advance of technology, and the impact of leadership. Lieutenant General Van Riper once noted, military cultures are like great ocean liners or aircraft carriers: they require an enormous effort to change direction. While those making changes in an institution's value system at times have a clear idea of the results they seek, in most cases they do not, and in any case cannot be assured of achieving the desired results…as there are no short-term solutions to problems in military culture. Those interested in reforming military culture must recognize instead that reforms, changes in emphasis, or even radical surgery will not yield immediate results. An effective change in military culture can only occur over a period of decades, and it is as likely that unintended effects of reforms on the cultural patterns of an organization may be more significant than intended effects. [220]

Just as some of the greatest new ideas come from old books, the Navy of the early twentieth century during the interwar period provides a road map for developing a learning culture and making the transition to a learning organization. Small but realistic course corrections made in the present can have a profound effect in the future. A stable educational infrastructure, along with ensuring the best faculty are chosen to staff schools, along with the right students attending them, is a solid step in the right direction. Our Navy

---

[218] Stephen Peter Rosen, *Winning the Next War: Innovation and the Modern Military*, (Ithaca, NY London: Cornell University Press, 1994), 20–58.

[219] Williamson Murray, "Does Military Culture Matter?," *Orbis (Philadelphia)* 43, no. 1 (Winter 1999): 27, https://doi.org/10.1016/S0030-4387(99)80055-6.

[220] Murray, 27–28

already has several essential pieces in place, it only needs to verify and enhance its' current systems to ensure they remain effective.

The E4S highlighted the importance of lifelong continuing education and the need to study and understand competitors and adversaries.[221] Becoming a learning organization is essential if the Navy is to keep pace with its twenty-first century rivals.

> Above all, the services need to practice some profound introspection, for unless they understand themselves and how different their world views are from those of our opponents in the next century, the United States is headed for a major crack-up that could prove even more disastrous than the Vietnam War. For at a minimum, notes an eminent military historian, our strategists must see clearly both themselves and potential adversaries, their strengths, weaknesses, preconceptions, and limits-through humility, relentless and historically informed critical analysis, and restless dissatisfaction even in victory. They must weigh imponderables through structured debates that pare away personal, organizational, and national illusions and conceits.[222]

Williamson Murray also cautioned against failing to learn and adapt when discussing the weaknesses of entrenched military cultures:

> It has often taken defeat to force substantive adaptation to the actual conditions of war. The *less* willing a culture is to display flexibility in peacetime, the *more* likely it is to have difficulty in adapting to the real conditions of war. There is a consistent historical pattern of military organizations attempting to impose their prewar concepts of future combat on the actual conditions of war instead of adapting to those conditions.[223]

By stressing the importance of continuous organizational learning now, along with providing the essential support structure of a learning organization to facilitate learning, the Navy will be better positioned to meet twenty-first century threats in the future. As the literature points out, military culture does not need to be a learning inhibitor, as shown during the interwar period, it can actually become a learning advantage.

---

[221] Mullen et al., "Education for Seapower," 394.

[222] Murray, "Does Military Culture Matter?," 41–42.

[223] Murray, 33.

B. BUREAUCRACIES AND HIERARCHIES

Aside from military culture and the predisposition to resist change, one of the most difficult challenges the Navy faces is operating within the bureaucracy of the federal government, where most decisions are reserved only for the hierarchies at the top of each respective department and their subordinate public organizations. Unlike military culture, the Navy has little choice but to operate within the constraints of the federal government and the DOD. As an annually funded appropriation, the Navy cannot exercise discretion over most of its annual budget, which makes it difficult to prioritize which programs receive funding and which programs do not.

> American businesses have become leaner in recent decades, with flatter management structures. Research has found that the average number of executives reporting directly to corporate CEOs has increased substantially in recent decades, while the number of management layers in major corporations has fallen. By contrast, in the federal government, "layering has become very extreme." Paul Light found that the number of layers, or ranks by title, in the typical federal agency has jumped from 7 to 18 since the 1960's. The federal workforce has become top-heavy with a growing number of executive designations (such as "principal associate deputy undersecretary"). Light concluded that today's "over-layered chain of command" in the government is a major cause of failure. Overlaying stifles information flow, and it makes it hard to hold anyone accountable for failures.[224]

Government bureaucracies are also prone to excessive rules and regulations; the red tape which often reduces efficiency, but admittedly is sometimes required to prevent fraud and corruption due to the large number of government contracts and federal funding handed out to vendors each year. In the fight for funding, the Navy must also learn to tactfully manage its relationships with competing political parties and special interests, all of which compete for the same pot of dollars while trying to justify why their programs should be funded, and others should not.

---

[224] Chris Edwards, "Bureaucratic Failure in the Federal Government," Downsizing the Federal Government, September 1, 2015). See also, Raghuram Rajan and Julie Wulf, "The Flattening of the Firm," National Bureau of Economic Research Working Paper no. 9633, April 2003, and Tom Fox, "The Deep-Rooted Problems with Government," interview with Peter Schuck, On Leadership (blog) www.washingtonpost.com, October 20, 2014, Paul C. Light, "Perp Walks and the Broken Bureaucracy," Wall Street Journal, April 26, 2012, Christopher Lee, "Agencies Getting Heavier on Top," Washington Post, July 23, 2004, Paul C. Light, "A Cascade of Failures," Brookings Institution, July 2014 p. 11

In his 2014 book, *Duty: Memoirs of a Secretary of War*, Secretary of Defense Robert Gates spoke openly about his frustrations in trying to reform the DOD:

> The very size and structure of the department assured ponderousness, if not paralysis because so many different organizations had to be involved in even the smallest decisions. The idea of speed and agility to support current combat operations was totally foreign to the building. It was quickly apparent that only I, as secretary, had the authority to change that. If that gargantuan, labyrinthine bureaucracy was to support the war fighter effectively and with speed, the initiative would have to come from the top. As usual in a huge bureaucracy, the villains were the largely nameless and faceless people—and their leaders—who were wed to their old plans, programs, and thinking and refused to change their ways regardless of circumstances. The hidebound and unresponsive bureaucratic structure that the Defense Department uses to acquire equipment performs poorly in peacetime. As I saw, it did so horribly in wartime. And then, as I've already said, there was the department's inexplicable peacetime mind-set in wartime.[225]

The Planning, Programming, Budgeting, and Execution (PPBE) process also tends to hinder potential improvements throughout the DOD. Originally introduced by Secretary of Defense Robert McNamara in the early 1960's, it is a system that each branch of the military uses "to justify, document, and allocate their annual share of DOD resources."[226] While the system has multiple layers of checks and balances to ensure full justification of each department and service branch's fiscal requirements, it also has an unintended side effect of locking budget controls in specific programs for long periods of time, making it difficult to reallocate funding to other important programs that may become higher priorities as situations develop.

> The military departments develop their budgets on a five-year basis, and most procurement programs take many years—if not decades—from decision to delivery. As a result, budgets and programs are locked in for years at a time, and all the bureaucratic wiles of each military department are dedicated to keeping those programs intact and funded. They are joined in those efforts by the companies that build the equipment, the Washington lobbyists that those companies hire, and the members of Congress in whose states or districts those factories are located. Any threats to those long-term

[225] Robert M. Gates, *Duty: Memoirs of a Secretary at War*, Illustrated edition (New York: Vintage Publishing, 2014), 116–126.

[226] Charles Tellis, "Understanding the PPBE Process," Navy Supply Corps Newsletter, May 14, 2013, https://scnewsltr.dodlive.mil/2013/05/14/understanding-the-ppbe-process/.

> programs are not welcome. Even if we are at war. For the wars in Iraq and Afghanistan, the needs of the field commanders and their troops were forwarded as requests to the regional combatant commander, who reviewed them and, if he was in agreement, pushed them to the Pentagon. Each request then had to pass through a Joint Chiefs of Staff filter, a military department filter, a department comptroller (the money person) filter, multiple procurement bureaucracy filters, and often other filters, any of which could delay or stop fulfillment of the requested equipment. These current, urgent requests were weighed against the existing long-term plans, programs, and available budgets and all too often were found to be lower in priority than nearly everything else—which meant they disappeared into a Pentagon black hole.[227]

The lack of flexibility and discretionary spending make it challenging to better support military leaders engaged globally in different theaters, whose conditions and scenarios vary widely, and are not subject to the standardization and consistency requirements of the PPBE process. It is even *more* difficult to justify budget dollars for training and education, as these programs are harder to validate for the various levels of the PPBE hierarchy. Operational requirements are real-world, in the present-tense, and much easier to justify. Educational requirements are more difficult to quantify; their future-tense return on investment can be viewed as subjective to the various leaders who may be hesitant to approve such initiatives, especially if the competition for funding and resources removes funding from other programs that are perceived to hold priority.

C. REALISTIC APPLICATIONS AND RECOMMENDATIONS

Recognizing that the Navy has very little budgetary discretion and will always be subject to legislation and the restrictive controls of an annual appropriation, many of the transformations that private organizations endure, are simply not an option. But, understanding where we are now, and that building a learning organization is not an overnight process, there are still some early steps we can take in the present that can serve as the course corrections that put the Navy in a better position in the future.

[227] Gates, *Duty*, 117.

1. Leadership and Creating Space

Because the DOD operates within the constraints of an annual budget appropriation, there is very little space for the Navy to exercise discretion on how and where it educates and develops its sailors. Since there is very little space to begin with, leaders have only one viable alternative, this space must be *created*. There is *some* room between the funding and resources that have been given, and how it is to be executed; leaders simply need to learn how to get potential initiatives approved through a legal and validated process.

While certain processes exist, they can be tricky to navigate. Programs such as the Navy's Program Objective Memorandum (POM), Mid-Year Review (MYR) and Omnibus budget programs are excellent methods to develop proposals to realign funds or identify funding shortfalls in education, but these programs can be arduous for first-time users. A Commanding Officer (CO) attempting to navigate these processes may be doing it for the first time, while others with experience may have moved on from these assignments.

The Prospective Commanding Officer (PCO) School is an excellent place to bridge this gap through the development of a formalized mentorship program. While some mentorship programs certainly exist, they are somewhat non-standardized. Many newly selected CO's may also be hesitant to reach out to superiors if they feel they may have influence on their fitness reports or future promotion opportunities. As detailed by Edmondson in Chapter II, this fear creates a community of silence, where the people who need help the most, are the least likely to speak up. Leaders may choose not to voice concerns, because they feel that their organization does not have the psychological safety that permits them to ask for assistance without fear of retribution. A formalized mentorship program can still promote informal dialogue, as an as-needed, mentor perspective can pay dividends when addressing the issue of psychological safety.

Experienced leaders can share previous experiences and show how they were able to lead and successfully create the space to make some of their own decisions, especially during times when a new commander may feel they have no space to lead or maneuver in. With modern missions becoming less simple and routine, multitasking and collaboration

are some of the best approaches to meet twenty-first century challenges, as the "go it alone" strategy severely limits the options of a leader and their crew. The Navy can make its smartest decisions when it leverages the experiences of a team instead of placing the burden on one individual. Only in a psychologically safe environment can a team reach its full potential, because they are more open to new ideas and less protective of their personal images and statuses.[228]

Mentors can provide experiences where they have found success working within the constraints that they were given in a previous assignment. Mentors can illustrate how they were able to procure additional funding for education, such as modernizing a computer laboratory, building a simulator, or providing middle-management training for its sailors by legally partnering with private organizations under the permission of the Navy's Staff Judge Advocate (SJA). Previous experiences serve as road maps for current experiences, and these types of programs increase the organizational IQ of an organization, while also keeping them legal and avoiding conflicts of interest when partnering with private vendors.

PCO School is simply a port of entry for a mentorship database to be built, where graduates from previous years can be paired up with recently selected commanders. Even if a mentorship program is formalized, it does not need to be mandatory. The Navy has options as to how formal it chooses to make it, but a formalized mentorship program is a near zero-cost initiative that could help to alleviate some of the common headaches and scenarios that many of our newer CO's are facing.

2. Lateral Transfers and Depth versus Range

One of the most common debates I have experienced in college classrooms is the depth vs range argument, with many individuals arguing that one method is superior to the other when attempting to become *great* at something. In his 2008 book, *Outliers: The Story of Success*, Malcolm Gladwell emphasized depth in practice, specialization, and a focused learning environment as keys to becoming proficient at a specific skill.[229] Conversely,

[228] Carmeli, Brueller, and Dutton, "Learning Behaviours in the Workplace."

[229] Malcolm Gladwell, *Outliers: The Story of Success* (New York: Back Bay Books, 2008).

David Epstein in his 2019 book, *Range: Why Generalists Triumph in a Specialized World*, argues that a diverse experience across multiple skills is more relevant in today's constantly changing environment, and relying on a breadth of experience is more effective in finding creative solutions and solving problems.[230] While many individuals might be tempted to pick a side of the depth versus range discussion, I believe a dialogue on a *depth of range* is more effective. Is there a reason why our Navy cannot enjoy the benefits of both?

In the unrestricted line officer communities, commonly known as the Navy's *warfighters*, specialization is important. Many Sailor's lives rely on each other's ability to execute their duties with precision in a variety of specialties. Their careers typically follow specific career pipelines, sometimes referred to as *the golden path*. It is difficult for these officers to gain experience in warfare communities outside of their own, which like many organizations, has the unintended consequence of keeping these different communities in their own respective silos, often disconnected from each other. This impedes a valuable transfer in knowledge. As Garvin emphasized, "for learning to be more than a local affair, knowledge must spread quickly and efficiently throughout the organization. Ideas carry maximum impact when they are shared broadly rather than held in a few hands."[231] There is no substitute for quality first-hand experience, which is why lateral transfers can be extremely valuable. Temporary or permanent job-swapping within an organization is an excellent way to facilitate knowledge transfer.[232] Temporary or permanent transfers between units can also help to widen the experience of both new and existing Sailors.[233]

Under the Navy's current model, the lateral transfer program means permanent assignment to a designator different from the Sailor's current career field, but lateral transfers do not need to be permanent. Temporary lateral transfers can help to facilitate the types of experiences, lessons learned, and knowledge transfer that Garvin and others have

---

[230] David Epstein, *Range: Why Generalists Triumph in a Specialized World* (New York: Riverhead Books, 2019).

[231] Garvin, "Building a Learning Organization," 25.

[232] Garvin, 25.

[233] Aimee Fox-Godden, "Beyond the Western Front: The Practice of Inter-Theatre Learning in the British Army during the First World War," *War in History* 23, no. 2 (April 2016): 204, https://www.jstor.org/stable/10.2307/26059763.

advocated for. These shorter *crosswalk* opportunities allow an individual to experience the challenges and realities of their fellow sailors without their current communities losing them. A crosswalk-type of temporary lateral transfer can be as short as a few weeks, a matter of months, or a six-month deployment in some scenarios. The benefit to both the Navy and the individual Sailor is that it enables a lot of exposure to several environments and different scenarios. Building perspective and having exposure to many things is important because it reduces the chances of seeing something for the first time. A Sailor's ability to draw from a range of experiences in their past better prepares them for complex challenges in the future.

Marquardt stressed the importance of job rotation, lateral transfers and team mixing as effective ways to share knowledge. Subject matter experts are put into positions where they can ensure the successful transmission of their knowledge, and newer team members are more willing to ask the questions that established employees will not. These types of questions bring with them a new perspective that can lead to new insights and creative solutions not previously discovered by individuals that may be too close to the problem.[234]

If a temporary lateral transfer program is too extensive for the more specialized unrestricted line officer communities, a smaller application to the restricted line and staff corps officer designators could still benefit, as their career paths are typically broader, less defined, and less specialized than their warfighting peers. For example, the officers in the Navy's Specialty Career Path (SCP) and Shore Installation Management (SIM) pipelines manage several broad areas of warfighting personnel and facilities, whose experiences could be amplified by temporary lateral transfers and assignments to different officer communities. These officers can better understand the unique challenges and missions their peers face so that they can better manage and support them. A temporary lateral transfer program allows more discretion for the Navy's officer and enlisted community managers, and the shorter nature of these assignments make it easier to justify for both military policy writers and legislators that appropriate funding.

[234] Marquardt, *Building the Learning Organization*, 149–51.

3. Lateral Learning and Outside Perspective

Garvin and Schein stressed that knowledge must be shared both laterally and vertically within an organization to maximize learning. They also highlight the importance of outside experiences, as these build additional perspective, help to eliminate blind spots, and build insight when trying to solve challenging problems. Insight allows organizations to adapt to changing conditions faster than its competitors because change management groups and steering committees have a breadth of experiences to draw from when making decisions to change an organization's direction.[235]

The Navy's Tours with Industry (TWI) program is a great example of developing this type of insight. [236] Understanding how outside organizations operate and innovate provides a road map for the Navy to borrow and share these types of experiences, as Sailors can benefit from the lessons learned from of the United States' most successful organizations willing to partner with the DOD.

When Sailors are struggling to find suitable assignments between sea tours, an expanded TWI program could provide a variety of internships that could bring useful solutions to some of the current problems the Navy is trying to solve. Cybersecurity personnel would benefit from time spent shadowing the teams at Apple and Qualcomm, and Supply Corps personnel can shadow the logistics experts at FedEx, UPS and Amazon to more efficiently transport people and equipment. The Navy's Research Development Test & Evaluation (RDT&E) teams can benefit from internships at Space X and Tesla, learning how to extend endurance and range by using self-sustaining renewable energy, or how to better support maritime missions by using offshore mobile refueling stations built from refurbished semi-submersible oil platforms. These are the types of experiences and insight that some of these organizations currently have, that the Navy does not. The TWI program is an excellent program that should be expanded, as the value for the Navy and the Sailor should be weighed against some of the standardized routine administrative

[235] Schein, "How Can Organizations Learn Faster?," 86.

[236] Karin Burzynski, "SECNAV Tours with Industry," *CHIPS Magazine*, September 27, 2019, https://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=12848.

assignments that many Sailors are often forced to accept simply due to a lack of other billet options.

While TWI addresses a critical need to bring insight and perspective from private organizations, there currently is no similar program for other government organizations wishing to work together. A proposal to solve this could potentially be something similar to a Naval Personnel Repository (NPR). An NPR would consist of a predetermined quota of internships hosted by other government agencies that the Navy agrees are of value. These internships would provide a means of building the perspective, insight, exposure, and experience discussed in earlier chapters. Sailors could fill internships similar to TWI, but instead of shadowing at private organizations, they work under the umbrella of another federal department. These internships would be opportunities where both federal organizations see a mutual benefit to the Sailors' participation.

For example, the most recent NDS highlights several emerging challenges. Russia has reestablished itself in the Arctic, bringing with them an "improved icebreaker fleet, a modernized airport network, and established a modern information and telecommunication infrastructure."[237] While the Russian military is gaining experience and improved capabilities in this region, the United States military has less Arctic capability now than it did during the Cold War. While the Navy has a lack of experience in the region, other federal organizations do not. To help bridge this experience gap, an NPR program would allow Sailors the opportunity to fill internship positions and shadow operators currently stationed in the Arctic, such as the operators of the North Warning System (NWS), which are Cold War era stations and radar sites on the shorelines of Alaska and Canada, that evolved from the Defense Early Warning (DEW) system that preceded it. Sailors could better understand what is needed to improve maritime operations north of the Arctic Circle, while also helping to define what future capabilities could be possible and what infrastructure would be needed to support them. A temporary interservice transfer with the Coast Guard could also benefit, as they are the only remaining United States service with

[237] Pavel Devyatkin, "Russia's Arctic Strategy: Military and Security," The Arctic Institute, February 13, 2018, https://www.thearcticinstitute.org/russias-arctic-military-and-security-part-two/.

icebreaking capability and familiarity operating in these types of environments. The Navy stands to benefit from gaining experience from the professionals currently stationed in the Arctic, as this is an expanding theater the Navy may be forced to operate in more frequently in the near future.

Another concern highlighted by the NDS and E4S has been the emergence of China as a future superpower, specifically their operations in the South China Sea and the construction of military installations on artificial islands built by land reclamation vessels. Similar to Russia's newly developed capabilities in the Arctic, the Chinese Navy has an ability to operate on remote islands that most Sailors in the United States Navy do not, however there are individuals within other federal organizations that do. Sailors could better understand what it is like to operate on an isolated island by shadowing some of the federal organizations that are currently stationed on similar islands in the Pacific. The United States has federal employees and civilian contractors that form a small semi-permanent presence on some of the more established islands, while the Coast Guard visits some of the more remote islands and atolls temporarily utilized depending on current missions. In either scenario, a Sailor can gain experience in an environment the Navy may be forced to operate in more frequently in the near future.

An NPR could allow a public works officer in the Civil Engineer Corps to learn more about drafting different types of joint-land use agreements between different federal, state and county organizations by shadowing someone at the Department of the Interior, or a physician in the Medical Corps could find value in shadowing someone from the Department of Health & Human Services. These are the types of lateral learning opportunities that bring a breadth of experience back to the Navy, with the benefit of no break in government service. An NPR of available positions could also help to temporarily staff positions waiting to be filled permanently by the gaining organization, as the time to recruit for some of these remote positions may be extensive.

4. Teaching Organizations and the Expansion of PME

Teaching is the highest form of understanding.

—Aristotle[238]

Teaching organizations can be the bridge that gets our Navy to where we want it to be. The expansion of PME at multiple levels is an excellent way to accomplish this. Teaching organizations make excellent learning organizations, because they encourage the sharing of information and the reinforcement of learning. According to Bill Taylor, for organizations to "stay ahead of the competition, their people, at every level, have to learn more (and more quickly) than the competition: new skills, new takes on emerging technologies, new ways to do old things."[239]

> One thing I've learned over the last few years, as I've traveled the world in search of organizations unleashing big change in difficult circumstances, is that the most determined innovators — the organizations with the most original ideas about how to compete and win — aren't just committed to learning. They are just as committed to teaching. They understand that the only sustainable form of market leadership is thought leadership.[240]

Our Navy already has a few premier teaching organizations in place. Our war colleges are tremendous strategic assets, we simply need to ensure that they are resourced and staffed appropriately. We must also ensure that their respective curriculums remain relevant to current and future strategic goals. Both the NDS and Joint Chiefs of Staff's 2020 Strategic Vision and Guidance for PME and Talent Management called for a renewed focus on PME to be regarded as a strategic asset, and that "the profound and rapidly changing character of war and conflict in the twenty-first century compels us to transform our leader development to maintain our competitive advantage and successfully prepare for the emerging ways of war our nation could face."[241] Remember from Chapter III that

---

[238] "Aristotle Quote," QuoteFancy, accessed March 2, 2021, ttps://quotefancy.com/quote/766876/Aristotle-Teaching-is-the-highest-form-of-understanding.

[239] Bill Taylor, "The Rise of the Teaching Organization," *Harvard Business Review*, November 17, 2009, https://hbr.org/2009/11/companies-with-class-the-rise.

[240] Taylor.

[241] United States Joint Chiefs of Staff, *Developing Today's Joint Officers for Tomorrow's Way of War*, 1.

both Russia and China have recently invested considerable effort and resources establishing PME institutions at multiple levels in their respective militaries. If our Navy wants to achieve the intellectual overmatch over its rivals that it desires, the expansion of PME must remain a top priority.

The Navy could expand PME by exploring what potential cost-sharing public-private venture opportunities may exist. As most PME is completed with in-house resources, possible future expansion could include public-private partnerships with outside agencies for the procurement and staffing of training ships, or improved ship and aircraft simulators located at more installations. An improved simulation environment allows for better training and the creation of Tactical Decision Games (TDG) that are more realistic and relevant to modern scenarios.

At the operational level, solicitation of services are not allowed on government property, but there are some existing models of successful public-private relationships exercised onboard naval installations.[242] If private organizations or civilian schools are offering free education or services, support agreements between the Navy and these organizations can allow mutual learning benefits in some areas, pending SJA approval and no conflicts of interest nor ethics violations exist.

While there are strict rules that prohibit military members from working alongside law enforcement agencies due to complicated *posse comitatus* perceptions, Emergency Management (EM) is a growing field in the United States where some potential public-private partnerships exist.[243] Several cities and counties have established Emergency Operation Centers (EOCs) to better manage critical resources during civil emergencies such as hurricanes, earthquakes, wildfires, flooding, chemical spills, and other random emergencies that occasionally arise. How EOCs handle these types of emergencies, specifically the deployment of first responders and critical resources while dealing with a

[242] Department of the Navy, *Solicitation and the Conduct of Personal Commercial Affairs on Department of the Navy Installations*, SECNAV Instruction 1740.2F (Department of the Navy, 2019).

[243] U.S. Bureau of Labor Statistics, "Emergency Management Directors: Occupational Outlook Handbook," U.S. Bureau of Labor Statistics, February 1, 2021, https://www.bls.gov/ooh/management/emergency-management-directors.htm.

civilian populace; is an excellent opportunity for the Navy's SIM personnel to shadow some of the nation's leading EM experts while taking these lessons learned back to the naval installations they manage. In addition to an excellent learning opportunity, having a presence in some of these EOC shared-spaces during actual emergencies helps Navy leaders make more informed decisions, because they now have Sailors in position to be the first to receive the most reliable information.

There are also potential partnerships between some of the Navy's RDT&E facilities and academic institutions. A few of the Naval Surface Warfare Centers currently have support agreements to share certain facilities, and others even co-host STEM and invention conventions with local colleges.[244] Smaller colleges often have more flexibility than larger universities, many of which are co-located within the same counties as many of our military installations. These types of academic relationships have tremendous potential, as the staffs onboard some of these colleges are very supportive of our military and willing to assist when able. The professors onboard provide critical outside perspective, and an ability to innovate in ways that many of our junior Sailors have not yet experienced. Many campuses also offer additional benefits to active duty and veterans, such as early registration and additional tutoring, so the Navy currently has existing informal relationships that can be expanded. Some academic institutions have more discretion than others, but local installation commanders can gauge whether a potential future relationship is possible and engage CNIC and SJA to determine if one is feasible.

Finally, for the officers selected to command larger organizations with a high percentage of DOD civilians, there are additional training opportunities that can be offered through the Navy's PCO school and Intermediate Leadership Course (ILC) by creating support agreements with the government agencies that provide training for human resources. Many of the naval officers that attend are first-time commanders or department heads, with little experience managing civilian employees. The Navy outsources many of

[244] Katherine Mapp, "NSWC Panama City Fosters STEM Outreach Though Invention Convention Competition," Naval Sea Systems Command, March 5, 2020, https://www.navsea.navy.mil/Media/News/SavedNewsModule/Article/2102932/nswc-panama-city-fosters-stem-outreach-though-invention-convention-competition/.

its civilian human resource functions to the Navy Office of Civilian Human Resources (OCHR), and the Civilian Personnel Advisory Center (CPAC) provides near identical services for the Army and several joint-commands. These organizations have a lot of experience dealing with hiring and retention, counseling and progressive discipline, performance improvement, union negotiation, how to properly manage during a sequestration, how to handle a furlough, and several other areas. These types of issues can be overwhelming for the officers that have not managed civilians before, which is why reaching out to these types of organizations for assistance could improve the professional working relationships between the Navy's military members and DOD civilians. While many of the Navy's URL officers likely do not need this type of assistance, officers in the SIM and SCP career tracks could stand to benefit, as many of these OCHR and CPAC organizations are co-located or within a few hours' drive of several of our military installations. For the installations that are geographically isolated in remote areas, there are video teleconferencing training options that can suffice. Some military units currently exercise informal civilian HR assistance programs with these types of organizations, and these are the types of successful relationships that should be learned from and expanded across the fleet. If these types of programs are successful, the Navy should begin to see a reduction in civilian equal opportunity complaints, retaliatory inspector general filings, and other types of formal grievances that are processed when the relationships between military members and civilians are not as strong as they should be.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSION

A. LOOKING AT WHAT WORKS

Going back to the original research question, "how can the Navy become a *better* learning organization," some of the most successful learning organizations have the following similarities:

Table 7. Common Trends and Key Characteristics

Common Trends in Organizations	Key Characteristics
Promote Continuous Learning	- Constructed feedback loops for faster improvement - Created space for hot groups and practice fields - Built better systems to share after action learning and solutions to common problems
Invest in Human Capital	- Facilitates professional learning at both internal and external vocational and post-secondary schools - Recognizes "people" as most important resource, valued more than technology or processes - Can be applied to Navy's NPS, NWC, NCC, PCO and ILC institutions
Decentralization	- Reduce redundant reporting requirements where possible - Allows more time for creativity, innovation, and relevant problem solving - Organization remains large but units become smaller, making it easier to communicate and collaborate
Discretion and Flexibility	- Allows more decision-making authority at middle and lower levels - Mission remains focus but allows some flexibility on process
Psychological Safety	- Alleviates fear from punishment for speaking up - Promotes culture that rewards teams vice individuals - Encourages innovation and allows some risk taking

The learning organizations that appear to be the most successful are the ones that have a structure in place that allows and supports organizational learning at all levels. They provide opportunities for continuous learning using built-in feedback loops and practice fields and may utilize the formation of task forces or hot groups to focus on either local or organization wide problems. These organizations also understand the importance of human capital, and choose to invest in its people, whereas other organizations may prioritize technology or the revamping of specific processes to increase efficiency. For the Navy, this could mean ensuring all naval academic institutions fall under non-discretionary funding, signaling them as must-pay initiatives instead of competing for annual resources. Categorizing these institutions as higher priorities allows them to build curriculums and support facilities with greater confidence if no longer distracted by the annual requirements that come with the pressure of an annual appropriation for funding.

Decentralization is also a common trend amongst learning organizations. Flatter organizations have the advantage of keeping the organization large, but makes units smaller, providing flexibility and reducing redundant and unnecessary reporting requirements. Even when operating within a bureaucracy or hierarchy, decentralization allows individual units more time to develop problem-focused solutions without administrative distractions because it is easier to communicate and collaborate amongst team members.

Discretion and flexibility involve creating space when and where it appears not to exist, allowing units to make their own decisions when possible. As discussed in earlier chapters, many of the best solutions come from the bottom-up, as those closest to the factory floor often have the best information to make better decisions. Allowing some discretion allows installation and unit-level commanders the authority and flexibility to determine what resources should be prioritized, which personnel should be recruited and retained, and which projects and programs should be funded.

Psychological safety means developing a culture where individuals feel free to come forward and do not fear punishment for honest mistakes and proposing solutions. Individuals and teams have increased confidence to be creative, innovate, and allow some risk taking without fear of reprisal. Organizations with strong psychological safety tend to

have cultures that reward teams vice individuals. This does not need to remove competition, as competition is often essential in discovering the best solutions, but incentives for success are tied more to mission accomplishment than individual achievements.

B. FUTURE AREAS OF RESEARCH

1. Building Organizational Structures

Discretion and flexibility were determined to be common trends amongst modern learning organizations. Some of the larger naval organizations that are given some discretionary decision making and spending authority are our Navy Working Capital Fund (NWCF) and RDT&E organizations. These departments are amongst our best at innovation, often partnering with outside agencies and defense contractors to develop new technologies and improve fleet and installation services. Some are not as restricted to the constraints of an annual appropriation and one-year funding, as they operate under a revolving-fund concept that allows them to continue operations when many other naval organizations are forced to cease operations. Likewise, many NWCF and RDT&E organizations are not impeded by the occasional challenges that annually appropriated organizations face, such as continuing resolutions, sequestrations, and employee furloughs. Because these organizations are given more discretion, and funding is planned over a multi-year period, they are less affected by government disruptions.

A future research project could analyze and determine whether any of these types of organizations can provide a model that could be replicated elsewhere in the Navy. The SIM and SCP communities could be areas for potential expansion of this model, especially in the areas of research and development and more effective installation management.

Next, the Navy understands the need to "spread good ideas faster", but we are somewhat limited by our current versions of after-action reports and the sharing of lessons learned. Another future research project could attempt to determine whether parts of the Naval Warfare Studies Institute (NWSI) at NPS could be expanded to the fleet. Under the NWSI, the Naval Research Program (NRP), as well as individual events such as the Warfare Innovation Continuum (WIC) and Big Ideas Exchange (BIX), are excellent

examples where NPS students and staff collaborate across different schools and outside agencies. The ATHENA online collaborative research discovery tool is another recent development with a high potential to spark innovation by connecting technical experts that are geographically separated so they can collaborate to solve current and future problems. Future research could better determine whether these programs can be expanded or replicated either broadly or regionally in other parts of our Navy.

2. Building Organizational Documents

Would our Navy benefit from the creation of additional organizational documents that focus on learning? The Marine Corps has had a strong learning organizational infrastructure in place since their development of FMFM 1 Warfighting, and more recently, MCDP 7 Learning. These types of organizational documents provide substantial support to PME curriculums and schools such as the AWS and EWS at MCU. The Navy does not currently have any recent comparable field manuals nor defense publications. Would similar organizational documents improve or support our PME curriculums at NPS and NWC?

3. The Naval Learning Ecosystem

How does our Navy actually learn? While certain units within the Navy have been analyzed, more research needs to be conducted to determine how we learn within our current structure, what Kozloski calls the Naval Learning Ecosystem, which "must be viewed as a strategic asset for the naval services, as it contains some of the greatest institutions our nation has to offer, with connections to similar organizations in the Department of Defense, National Labs and private research institutions."[245] A future research project could examine how we might improve our Navy's learning structure and culture, by finding more effective ways to connect and communicate between different warfare communities to maximize learning within this CAS structure.

[245] Robert P. Kozloski, "Understanding the Naval Learning Ecosystem," *CHIPS Magazine*, Summer 2018, https://www.doncio.navy.mil/Chips/ArticleDetails.aspx?ID=10559.

4. Better Data for Better Budgeting

Finally, can data be better utilized to smooth out the rigors of annual budgeting? Discretion and flexibility can be challenging for different departments because funding is constrained by the restrictions of an annual appropriation. Annual appropriations come with annual justification reports and annual reporting requirements, which are time consuming and often repetitive of the preceding year's submissions. As technology continues to improve, can better data analysis and synthesis make this easier by improving the current justification for each budget line item in the Navy's Program Budget Information System (PBIS) by looking at historical trends to better predict future needs? The Navy's Future Year Defense Program (FYDP) captures some of this for future years, but can better data analysis predict, and justify, in real-time, a four-year budget requirement instead of the current one-year budget requirement in place? Finding ways to accurately justify and secure multi-year funding would reduce the annual administrative burden that many of our BSO's and RS's currently face. These departments could save valuable time and have the discretion and flexibility to focus on more long-term goals instead of competing for annual funds. They would also have the ability and discretion to change direction quickly if a new mission requirement or operational need arises. Funding would be available because it sits in a four-year reserve instead of a one-year account, giving these organizations more time to replenish funds in future years instead of requesting additional funds during the current year. Can a system similar to the Navy's existing NWCF and RDT&E budgeting models be put into place in other areas of our Navy?

C. FINAL THOUGHTS

Are you learning as fast as the world is changing?

—Gary Hamel[246]

Can our Navy become a better learning organization? My own research has led me to believe that we *can*, but we appear to be fast approaching a critical decision point. We

[246] Taylor, "The Rise of the Teaching Organization."

have said and done many of the right things, but can we deliver, or will we be a Navy that seldom does what we say we will do? Our Navy has a history of brilliant ingenuity when we have been forced to learn, but these periods are intermittent, and often in response to conflict. Many of the historical events that have forced serious reform in the past, world wars, serious failures, and even massive budget cuts, are unlikely to happen anytime soon. Nothing external is going to force us to do this, we have to do this ourselves. For us to see this through, we must take charge of our own learning to become a better learning organization.

We have some pieces of a learning infrastructure in place, but it will not be enough unless our entire Navy grows to understand the importance of a supportive learning organizational structure and why the need to develop intellectual human capital is so important. Can we do this? Absolutely, but my analysis also tells me that we will struggle. The questions our Navy must ask itself are: why do we sometimes learn best only when we are forced to learn? What is it about our Navy's peacetime processes that make wartime challenges so difficult to adapt to? What else needs to happen for us to take learning seriously?

In our Navy's history, we have situations that forced us to learn quickly and collaborate rapidly to find solutions. We then have examples where these solutions were put into practice almost immediately, delivering the fast results we needed and often turned the tide of conflicts. We have seen smaller units in our organization that *did* learn, often in a hurry, that are positive examples of how we can learn faster in the future. The successful innovations we have experienced, whether in response to wartime mission requirements or during the interwar periods, are the types of examples that can serve as road maps as we apply these lessons learned to other parts of our Navy. If we tell ourselves that times have changed, and we cannot do this, then we must also be prepared to explain why our rivals can.

Our Navy needs to continue to innovate. In areas we struggle to do so, we have the advantage of working with a private sector that leads the world in innovation. This is a lateral learning advantage that the United States has, and our rivals do not. We have plenty of room to expand our current and future partnerships between public and private

organizations and academic institutions. We only need to develop the learning infrastructure that can sustain these types of relationships.

We need a report that details how our rivals learn, specifically China and Russia. We should also examine how some of our allies learn, especially those with smaller militaries and less funding to determine how their most effective units have found success despite limited resources. Without understanding *comparative advantages,* we cannot begin to develop *competitive advantages*.

Finally, our Navy needs to find better and more effective ways of sharing lessons learned and individual experiences. How to become a better learning organization can be taught in several ways, whether they be in the form of stronger mentorship programs or improved PME curriculums at all levels of our Navy. We have so many constraints and restrictions, but within our ranks, we also have endless experience. We only lack the learning structure to share it. We must discover how to share knowledge and learn together. A learned lesson for *one* should be a shared lesson for *many*.

We are so close, and we have everything we need. A few modest course corrections made now can put our Navy exactly where it wants to be in the future.

> We are continually faced by great opportunities brilliantly disguised as insoluble problems.
>
> —Lee Iacocca[247]

[247] "Lee Iacocca Quote," BrainyQuote, accessed March 10, 2021, https://www.brainyquote.com/quotes/lee_iacocca_130833.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. ORGANIZATIONAL TRANSFORMATION

Table 8. Organizational Transformation.[248]

Dimension	Old	New
Critical tasks	Physical	Mental
Relationships	Hierarchical	Peer-to-peer
Levels	Many	Few
Structures	Functional	Multidisciplinary teams
Boundaries	Fixed	Permeable
Competitive thrust	Vertical integration	Outsourcing and alliances
Management style	Autocratic	Participative
Culture	Compliance	Commitment and results
People	Homogeneous	Diverse
Strategic focus	Efficiency	Innovation

[248] Marquardt, *Building the Learning Organization*, 10.

Table 9. Contrasts Between Training and Learning.[249]

Training	Learning
From the outside in, done by others	From the inside out, learner motivated
Assumes relative stability	Assumes continuous change
Focuses on knowledge, skills, ability, and job performance	Focuses on values, attitudes, innovation, and outcomes
Appropriate for developing basic competencies	Helps organizations and individuals learn how to learn and create novel solutions
Emphasizes improvement	Emphasizes breakthrough (metanoia)
Not necessarily linked to organization's mission and strategies	Directly aligned with organization's vision and requirements for success
Structured learning experiences with short-term focus	Formal and informal, long-term future oriented, learner initiated

Table 10. Example of Mental Model Shifts.[250]

Old	New
Supervisors	Coaches
Workers	Continuous learners
Activities	Learning opportunities
Workplace	Continuous learning environment

[249] Marquardt, 48.

[250] Marquardt, 49.

Table 11. Changing Organizational Paradigms.[251]

Present Paradigm	New Paradigm
Short-term goals	Corporate and individual vision
Rigid culture	Flexible culture
Product orientation	Learning orientation
Regional emphasis	Global emphasis
Management direction	Employee empowerment
Procedure bias	Risk bias
Analysis only	Analysis, creativity, intuition
Competition	Collaboration and cooperation

Table 12. The Move from Steady-State to Continuous Change.[252]

From	To
Continual change	Transformation
Quality improvement	Process engineering
Matrix	Network
Performance appraisal	Performance management
Technophobia	Application of technology
Functions	Process
Control	Empowerment
Employment	Employability

[251] Marquardt, 80.

[252] Marquardt, 94.

Table 13. Managers as Instructors, Coaches, and Mentors.[253]

Dimension	Instructor	Coach	Mentor
Focus	Task	Results of job	Development of person throughout life
Time available	Day or two	Month or year	Career or lifetime
Approach to helping	Show and tell; supervise practice; set up opportunities to try out new skills	Explore problem together	Act as a friend; listen and question to enlarge awareness
Associated activities	Analyze task; give clear instructions; supervise practice; provide feedback on results	Jointly identify problems; create development opportunities; review	Link work with other parts of life; clarify broad and long-term aims and purpose in life
Ownership	Instructor	Shared	Learner

[253] Marquardt, 96.

APPENDIX B. SYSTEM LEARNING ORGANIZATION MODEL

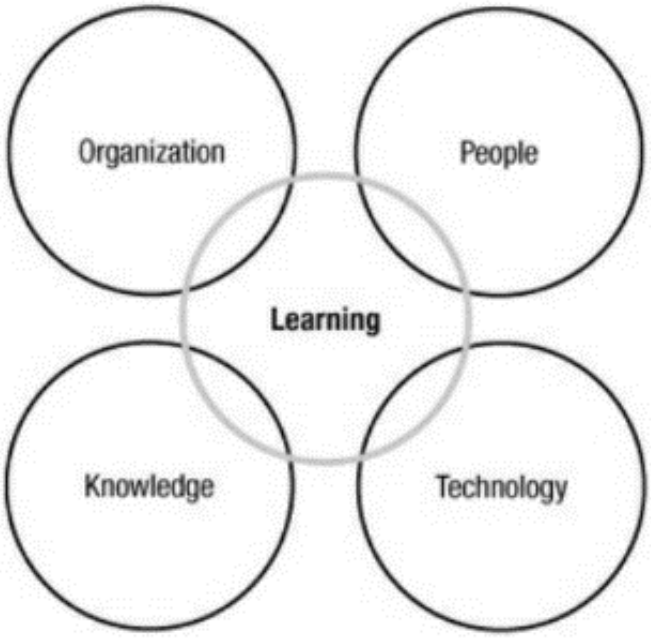


Figure 9. Systems Learning Organization Model.[254]

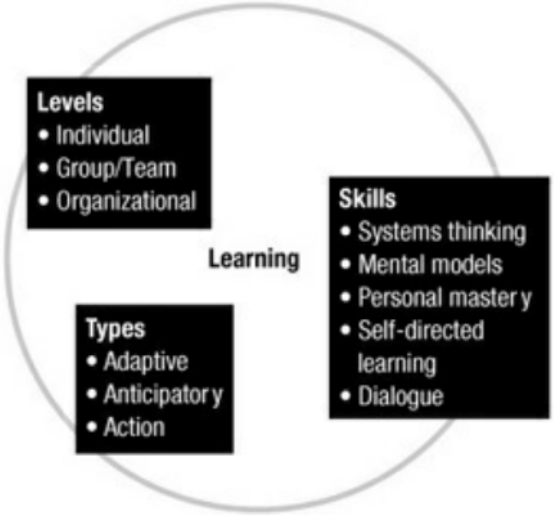


Figure 10. Learning Subsystem

[254] Marquardt, 21.

Figure 11. Organization Subsystem.[255]

Figure 12. People Subsystem.[256]

[255] Marquardt, 24.

[256] Marquardt, 26.

Figure 13. Knowledge Subsystem.[257]

Figure 14. Technology Subsystem.[258]

[257] Marquardt, 27.

[258] Marquardt, 29.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX C. BUILDING A LEARNING CULTURE

Figure 15. Learning Culture.[259]

[259] Russell Sarder, *Building an Innovative Learning Organization,* 31.

Figure 16. Learning Methods[260]

[260] Sarder, 54.

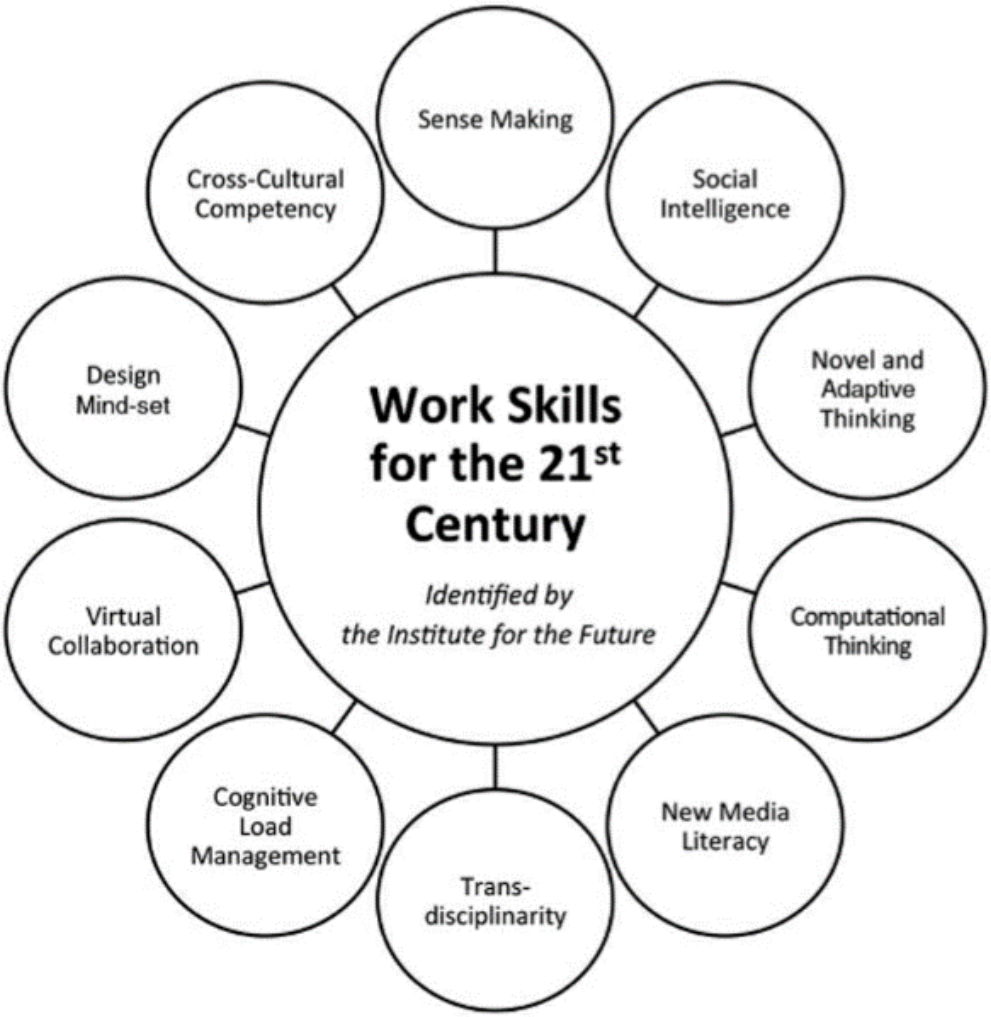


Figure 17. Work Skills for the Twenty-First Century[261]

[261] Sarder, 84.

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF REFERENCES

A-Z Quotes. “Einstein Quote.” Accessed March 2, 2021. https://www.azquotes.com/tag/imagination.

———. “Peter Senge Quote.” Accessed November 12, 2020. https://www.azquotes.com/quote/783088.

Alden, James G., Amber L. Hopeman and Jodi A. Neff, “Transforming Change in the Military: A Systems Approach.” Master’s thesis, Naval Postgraduate School, 2007, http://hdl.handle.net/10945/3491.

Andrews, F. M. “Creative Ability, the Laboratory Environment, and Scientific Performance.” *IEEE Transactions on Engineering Management* 14, no. 2 (June 1967): 76–83. https://doi.org/10.1109/TEM.1967.6448326

Argyris, Chris, and Donald A. Schon. *Organizational Learning: A Theory of Action Perspective*. Reading: Addison-Wesley, 1978.

Augier, Mie, and Sean Barrett. “Organizational Perspectives on the Maneuver Warfare Movement in the United States Marine Corps: Insights from the Work of James G. March.” *Industrial and Corporate Change* 29, no. 1 (February 2020): 143–62. https://doi.org/10.1093/icc/dtz063.

———. “Thinking Effectively First.” Center for International Maritime Security, June 24, 2020. http://cimsec.org/thinking-effectively-first/44322.

Baisden, Annette G. “Warfighter Readiness Research Division 2000 IMTA Conference Papers.” *Warfighter Readiness Research Division*, Creating a Learning Organization, November 1, 2000, 8. https://www.researchgate.net/publication/235096803_Warfighter_Readiness_Research_Division_2000_IMTA_Conference_Papers.

Beckman, Phil. “The U.S. Navy as a Learning Organization with Trent Hone.” In T*he Strategy Bridge*. Podcast, MP3 audio, 0:19. https://www.stitcher.com/show/undefined/episode/the-u-s-navy-as-a-learning-organization-with-trent-hone-56757266.

Belasen, Alan T. *Leading the Learning Organization: Communication and Competencies for Managing Change*. Albany: SUNY Press, 1999.

Berger, David H., Michael M. Gilday, and Karl L. Schultz. *Naval Doctrine Publication 1*. Arlington: United States Naval Service, 2020.

BrainyQuote. “Edmund Burke Quote.” Accessed December 16, 2020. https://www.brainyquote.com/quotes/edmund_burke_138679.

———. “Jack Welch Quote.” Accessed March 10, 2021. https://www.brainyquote.com/quotes/jack_welch_173305.

———. “Lee Iacocca Quote.” Accessed March 10, 2021. https://www.brainyquote.com/quotes/lee_iacocca_130833.

Brown, Ian T. *A New Conception of War: John Boyd, the U.S. Marines, and Maneuver Warfare*. Quantico: Marine Corps University Press, 2018.

Bryant, Adam. “Jeff Lawson of Twilio: When Ideas Collide, Don’t Duck.” *New York Times*, August 3, 2014, sec. Business. https://www.nytimes.com/2014/03/09/business/jeff-lawson-of-twilio-when-ideas-collide-dont-duck.html.

Burzynski, Karin. “SECNAV Tours with Industry.” *CHIPS Magazine*, September 27, 2019. https://www.doncio.navy.mil/chips/ArticleDetails.aspx?ID=12848.

Carmeli, Abraham, Daphna Brueller, and Jane E. Dutton. “Learning Behaviours in the Workplace: The Role of High-Quality Interpersonal Relationships and Psychological Safety.” *Systems Research & Behavioral Science* 26, no. 1 (February 2009): 81–98. https://doi.org/10.1002/sres.932.

Cohen, Don, and Laurence Prusak. *In Good Company: How Social Capital Makes Organizations Work*. Cambridge: Harvard Business Review Press, 2001.

Coram, Robert. *Boyd: The Fighter Pilot Who Changed the Art of War*. New York: Back Bay Books, 2004.

Correll, Diana Stancy. “A Culture of Learning: Why the Marine Corps Is Promoting Education, Training in Its New Doctrine.” *Marine Corps Times*, May 20, 2020. https://www.marinecorpstimes.com/news/your-marine-corps/2020/05/19/a-culture-of-learning-why-the-marine-corps-is-promoting-education-training-in-its-new-doctrine/.

Council on Foreign Relations. “Territorial Disputes in the South China Sea” January 20, 2021. https://www.cfr.org/global-conflict-tracker/conflict/territorial-disputes-south-china-sea.

Dalto, Jeffrey. “How to Become a Learning Organization (An Interview with Michelle Ockers).” *Convergence Training Blog* (blog), April 22, 2019. https://www.convergencetraining.com/blog/how-to-become-a-learning-organization.

Deloitte. “Human Capital Trends 2014: Engaging the 21st-Century Workforce.” December 16, 2020. https://www2.deloitte.com/sa/en/pages/human-capital/articles/human-capital-trends-2014.html.

———. *Leading the Social Enterprise: Reinvent with a Human Focus*. 2019 Deloitte Global Human Capital Trends, 2019. https://www2.deloitte.com/content/dam/insights/us/articles/5136_HC-Trends-2019/DI_HC-Trends-2019.pdf.

Department of the Navy. "Career Development Symposium." Navy.mil, January 25, 2019. https://www.public.navy.mil/bupers-npc/career/talentmanagement/Pages/CDS.aspx.

———. *Solicitation and the Conduct of Personal Commercial Affairs on Department of the Navy Installations*. SECNAV Instruction 1740.2F, 2019.

Devyatkin, Pavel. "Russia's Arctic Strategy: Military and Security." The Arctic Institute, February 13, 2018. https://www.thearcticinstitute.org/russias-arctic-military-and-security-part-two/.

Dictionary.com. "Definition of Quantum Leap." December 15, 2020. https://www.dictionary.com/browse/quantum--leap.

Easterby-Smith, Mark, Luis Araujo, and John G. Burgoyne, eds. *Organizational Learning and the Learning Organization: Developments in Theory and Practice*. London: SAGE Publications Ltd, 1999.

Eckstein, Megan. "Less Experienced Maintainers Contribute to Rise in Naval Aviation Mishaps." USNI News, June 22, 2018. https://news.usni.org/2018/06/22/less-experienced-maintainers-contribute-rise-naval-aviation-mishaps.

Edmondson, Amy. "Psychological Safety and Learning Behavior in Work Teams." *Administrative Science Quarterly* 44, no. 2 (June 1999): 350–83. https://doi.org/10.2307/2666999.

Edmondson, Amy C. *The Fearless Organization: Creating Psychological Safety in the Workplace for Learning, Innovation, and Growth*. New York: Wiley Publishing, 2018.

Edmondson, Amy C., and Bertrand Moingeon. "From Organizational Learning to the Learning Organization." *Management Learning* 29, no. 1 (March 1998): 5–20. https://doi.org/10.1177/1350507698291001.

Edwards, Chris. "Bureaucratic Failure in the Federal Government." Downsizing the Federal Government, September 1, 2015. https://www.downsizinggovernment.org/bureaucratic-failure.

Eilertsen, Soren, and Kellan London, M.A. "Modes of Organizational Learning." *Kollner Group*, 2005, 7. www.kollnergroup.com.

———. “Single and Double Loop Learning.” *Organizational Learning* (blog), December 10, 2014. https://organizationallearning9.wordpress.com/single-and-double-loop-learning/.

Epstein, David. *Range: Why Generalists Triumph in a Specialized World*. New York: Riverhead Books, 2019.

Fox-Godden, Aimee. “Beyond the Western Front: The Practice of Inter-Theatre Learning in the British Army during the First World War.” *War in History* 23, no. 2 (April 2016): 190–209. https://www.jstor.org/stable/10.2307/26059763.

Ganske, Rich. “Need a New Idea? Try An Old One: Revisiting PAC-10 in the Air-Sea Battle Concept.” Center for International Maritime Security, February 14, 2014. http://cimsec.org/need-new-idea-try-an-old-one/9975.

Garratt, Bob. *The Learning Organization*. London: Harper Collins Publishers, 1987.

Garvin, David A. “Building a Learning Organization.” *Business Credit* 96, no. 1 (January 1994): 19. http://search.proquest.com/docview/230156476/abstract/68A2B52392844D1APQ/1.

Garvin, David A., Amy C. Edmondson, and Francesca Gino. “Is Yours a Learning Organization?” *Harvard Business Review*, March 2008, 11. https://hbr.org/2008/03/is-yours-a-learning-organization.

Gaskell, Adi. “Speed Of Learning As The New Competitive Advantage.” Forbes. June 10, 2020. https://www.forbes.com/sites/adigaskell/2019/06/10/speed-of-learning-as-the-new-competitive-advantage/.

Gates, Robert M. *Duty: Memoirs of a Secretary at War*. New York: Vintage Publishing, 2014.

Gavetti, Giovanni M., and Simona Giorgi. “Kodak and The Digital Revolution.” *Harvard Business School*, November 16, 2004. https://www.hbs.edu/faculty/Pages/item.aspx?num=31757.

Gladwell, Malcolm. *Outliers: The Story of Success*. New York: Back Bay Books, 2008.

Hannah, Sean T., and Paul B. Lester. “A Multilevel Approach to Building and Leading Learning Organizations.” *The Leadership Quarterly*, Leadership and Organizational Learning, 20, no. 1 (February 2009): 34–48. https://doi.org/10.1016/j.leaqua.2008.11.003.

Harvey, John C. “Navy as a Learning Organization.” *Archived U.S. Fleet Forces Command Blog (2009-2012)* (blog), December 15, 2009. http://usfleetforces.blogspot.com/2009/12/navy-as-learning-organization.html.

Hone, Trent. *Learning War: The Evolution of Fighting Doctrine in the U.S. Navy, 1898–1945*. Annapolis: Naval Institute Press, 2018.

Hone, Trent. "SMH 2018 and 'Cross Functional' Officers." July 15, 2018. https://trenthone.com/tag/organizational-learning/.

Isaacs, William. *Dialogue: The Art Of Thinking Together*. New York: Currency Publishing, 2008.

Janis, Irving Lester. *Victims of Groupthink: A Psychological Study of Foreign-Policy Decisions and Fiascoes*. Boston: Houghton Mifflin Company, 1972.

Jefferson, Thomas. "Extract from Thomas Jefferson to Thomas Jefferson Randolph, 24 Nov. 1808, "Jefferson Quotes & Family Letters." The Jefferson Monticello, November 24, 1808. http://tjrs.monticello.org/letter/2300.

Kahn, William A. "Psychological Conditions of Personal Engagement and Disengagement at Work." *The Academy of Management Journal* 33, no. 4 (December 1990): 692–724. https://doi.org/10.2307/256287.

Kanter, Rosabeth Moss. "Ten Reasons People Resist Change." *Harvard Business Review*, September 25, 2012. https://hbr.org/2012/09/ten-reasons-people-resist-chang.

Kem, John, and Andrew T. Hotaling. "What Is Army University Supposed to Do and How Is It Going So Far?" *Army University Press*, April 1, 2017. https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning/Journal-of-Military-Learning-Archives/April-2017-Edition/What-is-Army-University-Supposed-to-Do-and-How-Is-It-Going-So-Far/.

Kiefer, C, and P Stroh. "A New Paradigm for Developing Organizations." *Training & Development Journal*, Transforming Work, 37, no. 4 (1983): 26–34. https://psycnet.apa.org/record/1983-24536-001.

Kline, Peter. *Ten Steps to a Learning Organization - Revised*. Arlington: Great River Books, 2015.

Knott, Anne Marie. "R&D/Returns Causality: Absorptive Capacity or Organizational IQ." *Management Science* 54, no. 12 (November 2008): 2054–67. https://doi.org/10.1287/mnsc.1080.0933.

Kouzes, James M., and Barry Z. Posner. *The Leadership Challenge: How to Make Extraordinary Things Happen in Organizations*. Hoboken, New Jersey: Jossey-Bass, 2017.

Kozloski, Robert P. "Understanding the Naval Learning Ecosystem." *CHIPS Magazine*, Summer 2018. https://www.doncio.navy.mil/Chips/ArticleDetails.aspx?ID=10559.

Kramlinger, Tom. “Training’s Role in a Learning Organization.” *Training* 29, no. 7 (July 1992): 46. http://search.proquest.com/docview/203393768/abstract/9335F4E223964A33PQ/1.

Kroger, John R. “This Is the Navy’s Plan for Launching Its New Community College.” *Navy Times*, April 19, 2020, sec. Commentary. https://www.navytimes.com/opinion/commentary/2020/04/19/this-is-the-navys-plan-for-launching-its-new-community-college/.

Leadbeater, C. W. *Living On Thin Air: A New Economy*. London: Viking, 1999.

Mapp, Katherine. “NSWC Panama City Fosters STEM Outreach Though Invention Convention Competition.” Naval Sea Systems Command, March 5, 2020. https://www.navsea.navy.mil/Media/News/SavedNewsModule/Article/2102932/nswc-panama-city-fosters-stem-outreach-though-invention-convention-competition/.

Marquardt, Michael. *Building the Learning Organization: Achieving Strategic Advantage through a Commitment to Learning*. Boston: Nicholas Brealey, 2011.

Mathieu, John E., Scott I. Tannenbaum, Jamie S. Donsbach, and George M. Alliger. “A Review and Integration of Team Composition Models: Moving Toward a Dynamic and Temporal Framework.” *Journal of Management* 40, no. 1 (January 2014): 130–60. https://doi.org/10.1177/0149206313503014.

McChrystal, Stanley. *My Share of the Task: A Memoir*. Portfolio, 2014.

McCollum, Luke M. *Industry Best Practices and Learning Culture*. Washington D.C.: Office of the Chief of Naval Operations, 2019. https://www.nrc.gov/docs/ML1909/ML19093A030.pdf.

Melino, Matthew, and Heather A. Conley. “The Ice Curtain: Russia’s Arctic Military Presence.” Center For Strategic and International Studies, January 20, 2021. https://www.csis.org/features/ice-curtain-russias-arctic-military-presence.

Mohr, Nancy, and Alan Dichter. “Building a Learning Organization.” *The Phi Delta Kappan* 82, no. 10 (June 2001): 744–47. https://www.jstor.org/stable/20440029.

Mullen III, William F. “Reinvigorating Maneuver Warfare.” *Marine Corps Gazette*, July 20, 2020. https://mca-marines.org/wp-content/uploads/Reinvigorating-Maneuver-Warfare.pdf.

Mullen, Michael G., John R. Allen, Barbara M. Barrett, Ann E. Rondeau, and Harlan K. Ullman. “Department of the Navy Education for Seapower (E4S) Study,” April 19, 2020. https://media.defense.gov/2020/May/18/2002302021/-1/-1/1/E4SFINALREPORT.PDF.

Murray, Williamson. “Does Military Culture Matter?” *Orbis (Philadelphia)* 43, no. 1 (Winter 1999): 27–42. https://doi.org/10.1016/S0030-4387(99)80055-6.

Murray, Williamson, and Alan R. Millet. *Military Innovation in the Interwar Period*. Cambridge University Press, 1996.

National Commission on Military Aviation Safety. “National Commission on Military Aviation Safety.” Military Aviation Safety, December 3, 2020. https://www.militaryaviationsafety.gov/.

Nemanich, Louise A., and Dusya Vera. “Transformational Leadership and Ambidexterity in the Context of an Acquisition.” *The Leadership Quarterly*, Leadership and Organizational Learning, 20, no. 1 (February 1, 2009): 19–33. https://doi.org/10.1016/j.leaqua.2008.11.002.

GE Capital. “Learning by Doing.” Accessed December 16, 2020. https://www.gecapital.com//en/pdf/GE_Capital_Example_Learning_By_Doing.pdf.

Paine, Nigel. “Is a Learning Culture More Important than Learning?” *Training Industry* (blog), March 19, 2019. https://trainingindustry.com/articles/strategy-alignment-and-planning/is-a-learning-culture-more-important-than-learning/.

Quotefancy. “Aristotle Quote.” Accessed March 2, 2021, https://quotefancy.com/quote/766876/Aristotle-Teaching-is-the-highest-form-of-understanding.

———. “Bruce Lee Quote.” Accessed October 16, 2021, https://quotefancy.com/quote/778818/Bruce-Lee-Learning-is-definitely-not-mere-imitation-nor-is-it-the-ability-to-accumulate.

Rebelo, Teresa, Paulo Renato Lourenço, and Isabel Dórdio Dimas. “The Journey of Team Learning Since ‘The Fifth Discipline.’” *The Learning Organization* 27, no. 1 (January 2019): 42–53. https://doi.org/10.1108/TLO-10-2019-0144.

Reese, Simon. “Taking the Learning Organization Mainstream and Beyond the Organizational Level: An Interview with Peter Senge.” *The Learning Organization* 27, no. 1 (January 2020): 6–16. https://doi.org/10.1108/TLO-09-2019-0136.

Reid-Martinez, Kathaleen. “Overcoming the Challenge of Legacy Learning Methods.” *Connections : The Quarterly Journal* 11, no. 4 (Fall 2012): 43–51. http://search.proquest.com/docview/1412206935/abstract/F72CE7A6B1A54C36PQ/1.

Rosen, Stephen Peter. *Winning the Next War: Innovation and the Modern Military*. Ithaca: Cornell University Press, 1994.

Rupčić, Nataša. “Learning Organization – Organization Emerging From Presence.” *The Learning Organization* 27, no. 1 (January 2019): 17–30. https://doi.org/10.1108/TLO-09-2019-0130.

Modern Military Training. “Sailor 2025 Pushing Ready Relevant Learning,” September 30, 2019. http://modernmilitarytraining.com/training-effectiveness/sailor-2025-pushing-ready-relevant-learning/.

Sarder, Russell. *Building an Innovative Learning Organization: A Framework to Build a Smarter Workforce, Adapt to Change, and Drive Growth*. New York: Wiley, 2016.

Schatz, Sae, David T Fautua, Julian Stodd, and Emilie A Reitz. “The Changing Face of Military Learning.” *Army University Press*, April 2017. https://www.armyupress.army.mil/Journals/Journal-of-Military-Learning/Journal-of-Military-Learning-Archives/April-2017-Edition/The-Changing-Face-of-Military-Learning/.

Schein, Edgar H. “How Can Organizations Learn Faster? The Challenge of Entering the Green Room.” *Sloan Management Review* 34, no. 2 (Winter 1993): 85. http://www.proquest.com/docview/224958701/abstract/D21FBE85A5824B5CPQ/1.

Schilling, Lisa, James W. Dearing, Paul Staley, Patti Harvey, Linda Fahey, and Francesca Kuruppu. “Kaiser Permanente’s Performance Improvement System, Part 4: Creating a Learning Organization.” *Joint Commission Journal on Quality and Patient Safety* 37, no. 12 (December 2011): 532–43. https://doi.org/10.1016/s1553-7250(11)37069-9.

Schon, Donald A. *Beyond the Stable State: Public and Private Learning in a Changing Society*. London: Maurice Temple Smith Ltd, 1971.

Schultz, Matthew J. “The Operational Warfare Revolution: How Operational Art Can Prepare the Marine Corps for an Era of Great Power Competition.” *Expeditions with MCUP*, March 5, 2020. https://doi.org/10.36304/ExpwMCUP.2020.02.

Senge, Peter M. *Presence: Exploring Profound Change in People, Organizations and Society*. London: Nicholas Brealey Publishing, 2005.

———. *The Fifth Discipline: The Art & Practice of The Learning Organization*. Revised and Updated Edition. New York: Currency Publishing, 2010.

Serrat, Olivier. “Building a Learning Organization.” In *Knowledge Solutions: Tools, Methods, and Approaches to Drive Organizational Performance*, edited by Olivier Serrat, 57–67. Singapore: Springer, 2017. https://doi.org/10.1007/978-981-10-0983-9_11.

Shultz, Richard H. *Military Innovation in War: It Takes a Learning Organization, a Case Study of Task Force 714 in Iraq*. JSOU Report 16. The JSOU Press, 2016.

Smith, Jacquelyn. "Why Millennials Need Constant Feedback - Business Insider." Business Insider, March 10, 2014. https://www.businessinsider.com/why-millennials-need-constant-feedback-2014-3.

Smith, Mark K. "Peter Senge and the Learning Organization." *The Encyclopedia of Pedagogy and Informal Education* (blog), April 4, 2013. https://infed.org/mobi/peter-senge-and-the-learning-organization/.

Smith, Mark K. "The Learning Organization: Principles, Theory and Practice." *The Learning Organization* (blog), October 19, 2019. https://infed.org/mobi/the-learning-organization/.

Spain, Everett S. P., J. D. Mohundro, and Bernard B. Banks. "Intellectual Capital: A Case for Cultural Change." Parameters 45, no. 2 (Summer 2015): 77–91. http://libproxy.nps.edu/login?url=https://www-proquest-com.libproxy.nps.edu/scholarly-journals/intellectual-capital-case-cultural-change/docview/1711519126/se-2?accountid=12702.

Stewart, Kenneth A. "Chief of Naval Operations Shares His Vision for High Velocity Learning." *CHIPS Magazine*, Summer 2016. https://www.doncio.navy.mil/CHIPS/ArticleDetails.aspx?ID=8029.

Stolle, Bryan. "Vision Without Execution Is Just Hallucination." *Forbes*, July 22, 2014. https://www.forbes.com/sites/bryanstolle/2014/07/22/vision-without-execution-is-just-hallucination/?sh=37ac724a7446.

Sucher, Sandra J. "How Boeing Should Have Responded to the 737 Max Safety Crisis." *Harvard Business Review*, March 14, 2019. https://hbr.org/2019/03/how-boeing-should-have-responded-to-the-737-max-safety-crisis.

Sullivan, Gordon R., and Michael V. Harper. *Hope Is Not a Method: What Business Leaders Can Learn from America's Army*. New York: Broadway Books, 2010.

Taylor, Bill. "The Rise of the Teaching Organization." *Harvard Business Review*, November 17, 2009. https://hbr.org/2009/11/companies-with-class-the-rise.

Tellis, Charles. "Understanding the PPBE Process." Navy Supply Corps Newsletter, May 14, 2013. https://scnewsltr.dodlive.mil/2013/05/14/understanding-the-ppbe-process/.

Toronto, Nathan W. "Does Military Education Matter?" *E-International Relations* (blog), May 26, 2015. https://www.e-ir.info/2015/05/26/does-military-education-matter/.

United States Department of Defense. *National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge.* Department of Defense, 2018.

United States Department of the Navy. *Strategic Readiness Review*. Washington, D.C: Department of the Navy, 2017. https://nps.primo.exlibrisgroup.com.

United States Government Accountability Office. *Navy Maintenance: Navy Report Did Not Fully Address Causes of Delays or Results-Oriented Elements*. GAO-21-66. Washington D.C.: Government Accountability Office, 2020. https://www.gao.gov/assets/720/710414.pdf.

United States Joint Chiefs of Staff. *Developing Today's Joint Officers for Tomorrow's Way of War: The Joint Chiefs of Staff Vision and Guidance for Professional Military Education & Talent Management.* Washington D.C.: Joint Chiefs of Staff, 2020.

United States Navy. "Reducing Administrative Distractions." Official message, Washington, DC: Department of the Navy, 2016. https://www.public.navy.mil/bupers-npc/reference/messages/Documents2/NAV2014/NAV14117.txt.

United States Bureau of Labor Statistics. "Emergency Management Directors: Occupational Outlook Handbook." U.S. Bureau of Labor Statistics, February 1, 2021. https://www.bls.gov/ooh/management/emergency-management-directors.htm.

Van Maurik, John. *Writers on Leadership*. London: Penguin Books Ltd, 2001.

Vencil, Taylor. "In Memoriam: Legendary Strategist and Fleet Tactics Author Wayne P. Hughes." Naval Postgraduate School, December 11, 2019. https://nps.edu/-/in-memorium-legendary-strategist-and-fleet-tactics-author-wayne-p-hughes.

Wang, Catherine L., and Pervaiz K. Ahmed. "Organisational Learning: A Critical Review." *The Learning Organization* 10, no. 1 (February 2003): 8–17. https://doi.org/10.1108/09696470310457469.

Weapon System Sustainment: Aircraft Mission Capable Rates Generally Did Not Meet Goals and Cost of Sustaining Selected Weapon Systems Varied Widely. GAO-21-101SP. Government Accountability Office, 2020. https://www.gao.gov/assets/720/710794.pdf.

Wodecka-Hyjek, Angelika. "A Learning Public Organization as the Condition for Innovations Adaptation." *Procedia - Social and Behavioral Sciences* 110, no. 2014 (January 2014): 148–55. https://doi.org/10.1016/j.sbspro.2013.12.857.

Worrell, Diane. “The Learning Organization: Management Theory for the Information Age or New Age Fad?” *Journal of Academic Librarianship* 21, no. 5 (September 1995): 351. https://doi.org/10.1016/0099-1333(95)90060-8.

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California